

AD-A264 708



CULTURAL RESOURCES INTENSIVE SURVEY AND TESTING  
OF MISSISSIPPI RIVER LEVEE BERMS  
CRITTENDEN AND DESHA COUNTIES, ARKANSAS AND  
MISSISSIPPI, SCOTT, CAPE GIRARDEAU AND PEMISCOT COUNTIES, MISSOURI

CONTRACT #DACW66-83-C-0030

ITEM R-48.87 A.C. NASH; MISSOURI, RELIEF WELL DITCHES  
CAPE GIRARDEAU AND SCOTT COUNTIES, MISSOURI

Final Report

Prepared for:

Department of the Army  
Memphis District, Corps of Engineers  
B-314 Clifford Davis Federal Building  
Memphis, Tennessee 38103

This document has been approved  
for public release and sale; its  
distribution is unlimited.

Prepared by:

Heartfield, Price and Greene, Inc.  
802 North 31st Street  
Monroe, Louisiana 71201  
Lorraine Heartfield, Ph.D. - Principal Investigator  
Project Director - Nancy W. Clendenen

93-10871



July 15, 1983



HEARTFIELD, PRICE AND GREENE, INC.

Cultural Resource Consultants • Archeological, Historical and Environmental Planning

REPORT DOCUMENTATION PAGE			Form Approved DMS No. 0104-0168	
<small>1. This report is the property of the Department of Defense and is loaned to your agency. It and its contents are not to be distributed outside your agency without the express written approval of the Department of Defense. 2. This report is the property of the Department of Defense and is loaned to your agency. It and its contents are not to be distributed outside your agency without the express written approval of the Department of Defense. 3. This report is the property of the Department of Defense and is loaned to your agency. It and its contents are not to be distributed outside your agency without the express written approval of the Department of Defense.</small>				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 15 JULY 1983	3. REPORT TYPE AND DATES COVERED final	
4. TITLE AND SUBTITLE Cultural Resources Survey and Testing of Mississippi River Levee Berms Crittenden & Desha Counties, AR and Mississippi, Scott, Cape Girardeau, and Pemiscot Counties, MO			5. FUNDING NUMBERS  c                      DACW66-83-C-0030	
6. AUTHOR(S)  Lorraine Heartfield Nancy W. Clendenen			8. PERFORMING ORGANIZATION REPORT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Heartfield, Price, and Greene, Inc. Monroe, LA				
9. SPONSORING MONITORING AGENCY NAME(S) AND ADDRESS(ES)  Dept. of the Army Memphis District Corps of Engineers B-202 Clifford Davis Federal Bldg. Memphis, TN 38103			10. SPONSORING MONITORING AGENCY REPORT NUMBER  143	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION AVAILABILITY STATEMENT  Unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  A total of 14 cultural properties were documented. This includes six archaeological sites and eight historic locations. Of the six archaeological sites documented, two contain prehistoric components and four contain historic components. The eight architectural sites include one mobile home, one fallen shed or cattle feeder, one mechanic garage, the abandoned Chaffee sewage treatment plant, and four modern bridges.				
14. SUBJECT TERMS			15. NUMBER OF PAGES 55	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

143



# HEARTFIELD, PRICE AND GREENE, INC.

802 North 31st Street  
Monroe, Louisiana 71201  
(318) 388-4754

6621 Wharton  
Houston, Texas 77055  
(713) 688-3933

LORRAINE HEARTFIELD, Ph.D.  
G.R. DENNIS PRICE, B.A. (Hons.)  
GLEN S. GREENE, Ph.D.

CULTURAL RESOURCES INTENSIVE SURVEY AND TESTING  
OF MISSISSIPPI RIVER LEVEE BERMS  
CRITTENDEN AND DESHA COUNTIES, ARKANSAS AND  
MISSISSIPPI, SCOTT, CAPE GIRARDEAU AND PEMISCOT COUNTIES, MISSOURI

CONTRACT #DACW66-83-C-0030

ITEM R-48.87 A.C. NASH; MISSOURI, RELIEF WELL DITCHES  
CAPE GIRARDEAU AND SCOTT COUNTIES, MISSOURI

## Final Report

Prepared for:

Department of the Army  
Memphis District, Corps of Engineers  
B-314 Clifford Davis Federal Building  
Memphis, Tennessee 38103

Prepared by:

Heartfield, Price and Greene, Inc.  
802 North 31st Street  
Monroe, Louisiana 71201  
Lorraine Heartfield, Ph.D. - Principal Investigator  
Project Director - Nancy W. Clendenen

July 15, 1983

Accession For	
NIS GRAFI	✓
DEPT. FILE	
Unannounced	
Justification	
By	
Date Submitted	
Availability	
Dist	Available for Special
A-1	

## ABSTRACT

Heartfield, Price and Greene, Inc. of Monroe, Louisiana, was contracted by the Memphis District of the United States Army Corps of Engineers under contract number DACW66-83-C-0030 to conduct cultural resources surveys along proposed ditches A, B, C and D and existing ditches 1, 4 and 8, all of which are in the vicinity of Nash, Missouri, Item No. R-48.87 A.C. (Relief Well Ditches). Prior to the surveys, a search of the archeological and historical literature was conducted for information pertaining to the study area. The surveys were conducted along 14.07 miles (22,648 meters/74,304 feet) of proposed and existing ditches. The 100% intensive on-the-ground surveys were augmented with subsurface tests excavated within the right-of-ways specified by the contracting agency.

In an effort to assess the archeological properties recorded and provide useful information for future research, the Mississippi River alluvial history and the cultural sequence of the area is provided. Based on these data and the results of the field surveys, a settlement model for the study area is hypothesized.

A total of 14 cultural properties were documented. This includes six archeological sites and eight historic architectural locations. Of the six archeological sites documented, two (23CG115 and 23CG116) contain prehistoric components; and four (23CG114, 23ST201, 23ST202 and NLU-83-62) contain historic components. The eight architectural sites include one mobile home (NLU-83-54); one fallen shed or cattle feeder (NLU-83-57); one mechanic garage (NLU-83-67); the abandoned Chaffee sewage treatment plant (NLU-83-66); and four modern bridges (NLU-83-58, NLU-83-63, NLU-83-64 and NLU-83-65).

Only one of the archeological sites (23CG115) is believed potentially eligible for inclusion on the National Register of Historic Places. The only other prehistoric site (23CG116) does not meet the criteria of eligibility for inclusion on the National Register of Historic Places. The site, a sparse surface scatter of debris, does not contain additional data contributive to the prehistory of the area. The four historic archeological sites (23CG114, 23ST201, 23ST202 and NLU-83-62) are not eligible for inclusion on the National Register of Historic Places as they contain no useful information about the area's history. Further, one site (NLU-83-62) does not meet the age criterion.

The architectural features recorded all post-date 1940, and exhibit no significance in architectural style, workmanship or materials. These meet none of the criteria necessary for inclusion on the National Register of Historic Places.

Of the 14 cultural resources recorded only four (23ST201, NLU-83-57, NLU-83-58 and NLU-83-62) will be impacted by the present project.

If a determination of eligibility for inclusion on the National Register of Historic Places is sought for 23CG115, additional on-site collections and subsurface investigations are recommended.

No additional recommendations for the management of the other cultural properties are made.

## TABLE OF CONTENTS

INTRODUCTION.....	1
Description of Project.....	1
Regulatory Criteria.....	1
Scope, Time Frame and Personnel.....	3
ENVIRONMENTAL SETTING.....	3
Physiography.....	3
Alluvial History.....	4
Geology.....	6
Soils.....	6
Paleoenvironment.....	7
Historic Environment.....	10
Climate.....	10
Flora.....	10
Modern Fauna.....	10
Human Settlement and Habitat Exploitation.....	11
PREVIOUS INVESTIGATIONS.....	12
Previous Archeological Investigations.....	12
CULTURAL SEQUENCE .....	13
Prehistoric Sequence.....	13
Historic Indians.....	19
Historic Sequence.....	20
METHODOLOGY.....	27
Literature Search.....	27
Field Survey.....	28
RESULTS.....	41
Literature Search.....	41
Field Survey.....	42
Archeological Sites.....	43
Architectural Sites.....	46
SETTLEMENT MODEL.....	47
Prehistoric Observations and Hypotheses.....	47
Historic Observations and Hypotheses.....	49
Survey Comment.....	49
SIGNIFICANCE.....	49
Potentially Significant Sites.....	49
Nonsignificant Sites.....	50

TABLE OF CONTENTS  
(Continued)

IMPACTS.....	52
23ST201.....	52
NLU-83-57.....	52
NLU-83-58.....	52
NLU-83-62.....	53
RECOMMENDATIONS.....	54
23CG115.....	54
Other Cultural Properties.....	54
REFERENCES CITED.....	55
APPENDIX A - SCOPE OF WORK	
APPENDIX B - RECORDED CULTURAL PROPERTIES	
APPENDIX C - PERSONS CONSULTED	
APPENDIX D - CORRESPONDENCE	

## LIST OF FIGURES

Figure 1.	Project Location.....	2
Figure 2.	Mississippi River Channels.....	5
Figure 3.	Pleistocene Vegetative Migration Map for the Study Area.....	9
Figure 4.	Ditch Number One, as surveyed for cultural resources.....	31
Figure 5.	Ditch Number Four, as surveyed for cultural resources.....	33
Figure 6.	Ditch Number Eight, as surveyed for cultural resources.....	35
Figure 7.	Ditch "A", as surveyed for cultural resources.....	36
Figure 8.	Ditch "B", as surveyed for cultural resources.....	38
Figure 9.	Ditch "C", as surveyed for cultural resources.....	39
Figure 10.	Ditch "D", as surveyed for cultural resources.....	40

## LIST OF TABLES

Table 1.	Previously recorded sites.....	42
Table 2.	Table of Equivalent Site Numbers.....	42
Table 3.	Physiography of recorded cultural properties.....	44
Table 4.	Alluvial and cultural sequence.....	48
Table 5.	Proposed work and impacts at recorded cultural resources.....	53

## INTRODUCTION

### Description of Project

Heartfield, Price and Greene, Inc. of Monroe, Louisiana, was contracted by the Memphis District of the United States Army Corps of Engineers under contract number DACW66-83-C-0030, Item R-48.87 A.C., to conduct cultural resources surveys along proposed ditches A, B, C and D, which parallel the existing Headwater Diversion Channel Levee. Additional surveys were conducted along existing ditches 1, 4 and 8, which will be dredged and, in some areas, be substantially widened. The purpose of these projects is to remove seepage water which develops in the vicinity of the levees during high water conditions.

The project areas surveyed are all in the vicinity of Nash and Chaffee, in Cape Girardeau and Scott Counties, Missouri (Figure 1). Generally, the areas surveyed include: a 60.96-91.44 meter wide (200-300 feet) right-of-way, as measured perpendicular and landside from the existing Headwater Diversion Channel Levee centerline (ditches A through D). Additional surveys along one or both banks of ditches 1, 4 and 8 were conducted. The right-of-way, as measured perpendicular from the existing ditch centerlines, varied from 12.19 meters to 64 meters (40 feet to 210 feet) in width.

It should be noted that much of the areas surveyed are within or are on existing levees, berms and borrow ditches (ditches A through D) or on post-1972 dredged spoil banks from and adjacent to ditches 1, 4 and 8. These ditches were last dredged and cleaned in 1972 (Personal Communication: Larry Dowdy, March, 1983).

### Regulatory Criteria

The survey was conducted in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (PL 89-665), as amended; the National Environment Policy Act of 1969 (PL 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971 (36 FR 8921); Preservation of Historic and Archeological Data, 1974 (PL 93-291), as amended; and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

The National Register of Historic Places criteria for evaluation of significance (36CFR Part 60.6) were applied to all cultural resources identified. These criteria are:

"The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period or



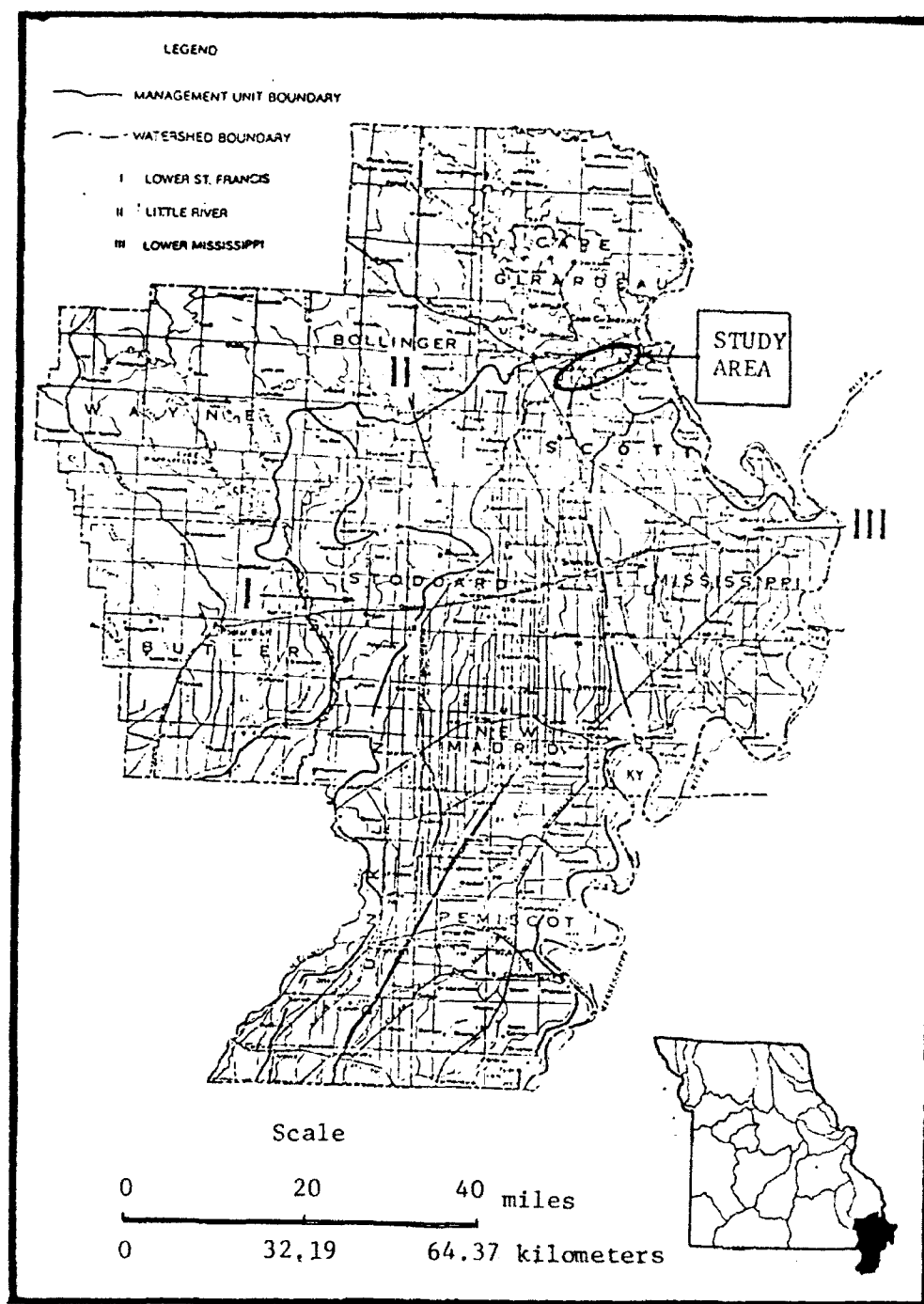


Figure 1. Project location. Base map from Lower St. Francis/ Lower Mississippi Management Unit, Missouri State Plan, Draft. 1982.

**COPY AVAILABLE TO DTIC DOES NOT PERMIT FULLY LEGIBLE REPRODUCTION**

method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history" (36CFR Part 60.6).

It should be noted that certain classes of cultural resources are not ordinarily considered eligible for inclusion on the National Register of Historic Places. These are:

- cemeteries, birth places or graves of historic people;
- properties primarily of a religious or commemorative nature;
- properties that have been moved or reconstructed;
- properties that have become significant within the last 50 years.

#### Scope, Time Frame and Personnel

The Scope of Work (Descriptions/Specifications) is included in Appendix A. This document sets forth tasks and conditions for the cultural resources investigations. Heartfield, Price and Greene, Inc. began background research for the project on March 1, 1983. On-the-ground survey was conducted between March 10 and March 17, 1983. Background investigations continued throughout the on-the-ground survey interval.

The project principal investigator was Lorraine Heartfield, Ph.D. The project director was Nancy W. Clendenen. Cultural resources archival investigations were conducted by William Moore and Nancy W. Clendenen. The environmental overview was prepared by Edward L. Beene. The field work was directed by Nancy W. Clendenen and assisted by William Moore and Michael R. Madden. Report preparation was a joint effort by the project staff and principal investigator.

### ENVIRONMENTAL SETTING

#### Physiography

Koenig (1961) indicates the study area is located in the level to nearly level floodplain of the Mississippi River and classified it as being part of the Southern Mississippi Valley Alluvium land resource. The elevations in the study area range from 97.53 meters to 100.58 meters (320 to 330 feet) above mean sea level (AMSL). To the north, east and west the land remains flat to gently rolling. To the south there are dissected uplands with some elevations exceeding 152.4 meters (500 feet) AMSL (U.S.G.S. 1966 Morley 15' quadrangle map).

The natural drainages near the study area include Hubble Creek, Ramsey Creek and the Mississippi River; with Hubble Creek being the closest. The Headwater Diversion Channel, a man-made feature, is situated along the northern edge of the study area. To the west of the study area is the man-made Ramsey Creek Diversion Channel (U.S.G.S. 1966 Morley 15' quadrangle map).

## Alluvial History

Fisk (1944) delineates three stage channels of the Mississippi River occurring in the study area. These include, from oldest to youngest, the C<sub>2</sub> channel which was a part of the Sunflower trunk system of the Bayou LaRose deltaic system, the J channel which was a part of the Cocodric trunk system of the Eocodric deltaic system and the number 1 channel which was a part of the lower St. Francis trunk system of the Teche deltaic system. Saucier (1974) shows no stage channels of the Mississippi River in the study area. However, Saucier's work was brief and not as detailed as Fisk's work. Saucier (1974) only identifies five deltaic systems, all of which are included in Fisk's work.

Fisk (1944) dates the C<sub>2</sub> channel of the Bayou LaRose deltaic system to 3000 to 4500 BP. while Saucier's equivalent deltaic system dates +6300 BP. The J channel of the Cocodric deltaic system of Fisk dates to +2200 BP while Saucier's equivalent deltaic system dates +4900 BP. Likewise, Fisk's #1 channel of the Teche deltaic system dates to 1875 BP while Saucier's equivalent deltaic system dates to +4400 BP.

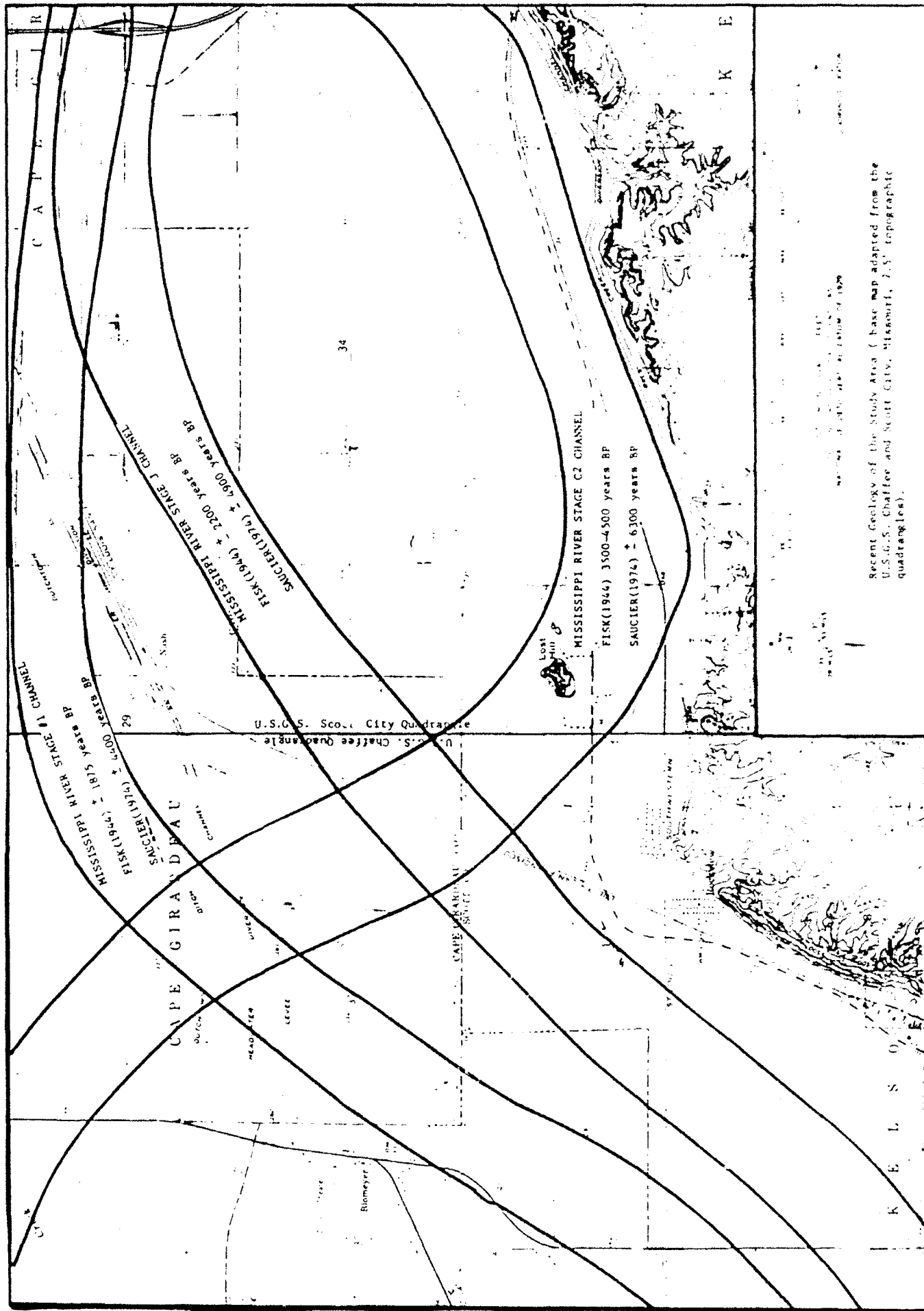
A simple model utilizing the relative location of the meanders in the study area as shown in Figure 2 may be helpful in determining the affect of these physiographic events. For the construction of this model, the following assumptions are made:

- 1) The channels designated by Fisk (1944) are correct, as these were delineated only after exhaustive research;
- 2) The dates suggested by Saucier are more correct as they are based on more recent data.
- 3) The landscape in the study area was composed of alluvial sediments with landforms typical of riverine environments (for example: natural levees and backswamps).

Approximately 7000 to 6000 BP, the C<sub>2</sub> stage of the Mississippi River cut its channel, which flowed through the study area entering from the west and flowing in a semi-loop to the northwest, as shown in Figure 2. It can be hypothesized that deposits located in the channel were removed during channelization. Further, low lying deposits were covered by alluvium from the C<sub>2</sub> stage.

Between 5300 to 4500 BP, the G, H, I and J stages of the Mississippi River occurred. Because only the J stage of the channel occurs in the study area, it is assumed that it is the stage that affected the study area.

During this stage, a large alluvial fan was formed that covered the study area, as shown by Fisk (1944:plate 15, sheet 1). It is likely that the features of the preceding C<sub>2</sub> stage were buried because Fisk shows all portions of the study area between specific channels to be composed of alluvial fan remnant material. Further then, it is tenable to assume that no surfaces remained in the study area that predated 5300 BP.



Recent Geology of the Study Area (base map adapted from the U.S.G.S. Chaffee and Scott City, Missouri, 7.5' topographic quadrangle).

Figure 2. Mississippi River Channels

Between 4800 to 4000 BP the last Mississippi River stage to occupy the study area (the #1 stage of the Teche deltaic system) occurred. It is assumed that this channel removed older deposits and created overbank flooding with concomitant alluvial deposits. The areal extent of such overbank deposits is not known.

Throughout the alluvial history of the valley (and probably continuing today) colluvial material from the dissected uplands to the south was probably incorporated into the alluvial matrix of the deposits in the study area. In fact, U.S.D.A.-S.C.S (1981:82) shows remnants of identifiable colluvium scattered across the study area.

Further, the Missouri Department of Natural Resources geologic map (1981) shows a 200 foot deep layer of alluvium across the entire study area. No readily identifiable natural surface physiographic features occur in the study area. Given the depth of recent alluvium (0-200 feet), it is anticipated that natural features or remnants of natural geologic features are deeply buried.

### Geology

Koenig (1961:13) describes the surface geology of the study area as being Tertiary-Quaternary recent stage deposits. These consist of alluvial deposits, as well as colluvial deposits from the uplands to the south. This is substantiated by the geologic map prepared by the Missouri Department of Natural Resources in 1981. It should be noted that the alluvial/colluvial deposits are approximately 200 feet thick. Therefore, consideration of the underlying geological deposits is not applicable to this study.

### Soils

Soils developed in the study area are in the Sharkey and Adler-Falaya associations. These include Sharkey silty clay loam, Mhoon silt loam, Commerce silty clay loam, Adler silt loam and Falaya silt loam (U.S.D.A.-S.C.S. 1981).

Soils in the Sharkey association, typically found in broad basins and former channels of the Mississippi and Ohio Rivers are also called gumbo soils (U.S.D.A.-S.C.S. 1981:13). These soils are poorly drained with the surface consisting of dark grayish-brown silty clay or silty clay loam about 18 centimeters (7 in.) thick. The subsoil is about 120.51 centimeters (47 in.) thick. The upper part is dark gray, mottled, firm clay and the lower part is gray, mottled, firm silty clay (U.S.D.A.-S.C.S. 1981:13). Sharkey silty clay loam is found in nearly level, narrow, low ridges and in broad, flat to slightly concave or depressed areas (U.S.D.A.-S.C.S. 1981:47-48). Sharkey silty clay loam has very slow permeability with slow to very slow run-off and is rarely flooded. Mhoon silt loam is a nearly level, poorly drained soil found on low-lying drainageways and depressions on the Mississippi River floodplain (U.S.D.A.-S.C.S. 1981:48). It has slow permeability and slow run-off. It is rarely flooded (U.S.D.A.-S.C.S. 1981:48).

Soils in the Adler-Falaya association are typically found on alluvial fans and natural levees of the Mississippi River floodplain and on smaller stream bottoms in the uplands (U.S.D.A.-S.C.S. 1981:8). These soils are nearly level, moderately well drained and somewhat poorly drained silty soils found in alluvium (U.S.D.A.-S.C.S. 1981:8).

According to U.S.D.A.-S.C.S. (1981:8), Adler soils are nearly level and moderately well drained. Typically, the surface layer is dark brown silt loam about 20.5 centimeters (8 in.) thick. The substratum extends to a depth of 1.53 meters (60 in.) or more. The upper part is brown silt loam, the middle part is brown, mottled silt loam, and the lower part is brown stratified silt loam.

Falaya soils are nearly level and are somewhat poorly drained. Typically, the surface layer is dark brown silt loam about 15 centimeters (6 in.) thick. The substratum extends to a depth of about 1.53 meters (60 in.). The upper part is dark grayish-brown, mottled silt loam, and the lower part is grayish brown, mottled silt loam. Adler silt loam is found on alluvial fans and along drainageways in the uplands (U.S.D.A.-S.C.S. 1981:31). It has moderate permeability and slow run-off and is rarely flooded. Falaya silt loam is found on flat broad areas of former or active floodplains and along smaller, narrow drainageways in the uplands (U.S.D.A.-S.C.S. 1981:52). It has moderate permeability and slow run-off and is rarely flooded. The Commerce silty clay loam is found on floodplains along the Mississippi River (U.S.D.A.-S.C.S. 1981:36). It has slow permeability and medium to slow run-off and is rarely flooded.

In addition to the naturally developed soils in the study area, the U.S.D.A.-S.C.S. (1981:52) recognizes soils deposited by human methods. These secondary deposits are Orthents-Water Complex soils. They include the matrix of the levee that parallels the Mississippi River and the adjacent borrow pits from which the materials for this levee were taken. They also are found along the Headwater Diversion Channel and its levee system. These soils are typified by long, narrow bands of loamy and clayey soils. The delineators are long and continuous and are about 15 to 20 percent water.

#### Paleoenvironment

The discussion of the paleoenvironment will be limited to 20,000 BP (before present) as this is generally believed to be the time of entry of Early Man to North America. Principal references for the discussion include Wharton (1978), Harshberger (1958), Simpson (1941; 1945) and Mosimann and Martin (1975).

A brief synopsis of major chronological events since 20,000 BP according to Wharton (1978) is provided. At 20,000 BP the Wisconsin Glacial Stage was at its peak, with its coolest temperature and southernmost extension of glaciers. By 14,000 BP, the boreal forest had retreated to the north and sea level for the Gulf of Mexico had begun to rise. A warming trend started prior to 14,000 BP and accelerated through 10,000 BP. The Wisconsin Glacial Stage ended in 10,000 BP (Miller 1974). The hypsithermal period began approximately 9,000 BP and continued for 3,000 years. By 2,500 BP, the sea level had risen to present-day levels. A world-wide cooling trend was experienced in the 16th century (Wharton 1978).

#### Paleobotany

According to Harshberger (1958), the ancestral forest of the present-day forest in the study area began migrating after the beginning of the glacial retreat, at the end of the Wisconsin Glacial period. The ancestral forests,

remnants of a large miocene deciduous forest that virtually covered the United States east of the Mississippi River, were located through the central-eastern United States (Figure 3). As the glaciers retreated further north, the ancestral forest migrated south, east and north in concentric waves similar to those associated with a stone tossed in the water. Harshberger's proposed order of invasion is as follows:

#### WIND CARRIED SEEDS

1. <u>Picea alba</u> (=P. <u>canadensis</u> ) (White spruce), farthest north	6. <u>Betula papyrifera</u> (Paper Birch)
2. <u>Picea nigra</u> (=P. <u>mariana</u> ), (Black spruce), farthest north	7. <u>Abies balsamea</u> (Balsam fir)
3. <u>Larix americana</u> (=P. <u>laricina</u> ) (Spruce)	8. <u>Pinus strobus</u> (White pine)
4. <u>Populus balsamifera</u> (Cottonwood)	9. <u>Thuja occidentalis</u> (Eastern arborvitae)
5. <u>Populus tremuloides</u> (Quaking asp)	10. <u>Ulmus americana</u> (American elm)
	11. <u>Acer saccharum</u> (Sugar maple)
	12. <u>Tsuga canadensis</u> (Canada hemlock)

#### ANIMAL CARRIED SEEDS

13. <u>Quercus rubra</u> (Red oak)	16. <u>Castanea americana</u> (=dentata) (Paper Birch)
14. <u>Fagus americana</u> (American buck)	17. <u>Juglans nigra</u> (Black walnut)
15. <u>Quercus alba</u> (White oak)	

With the exception of chestnuts (Castanea), which have been killed by the Chestnut Blight, the migratory forest continued the same genera that is present today. These genera include oaks (Quercus), ashes (Fraxinus) and hickories (Carya) (Harshberger 1958). It is believed that the understory also resembled the present-day vegetation.

#### Paleozoology

Many exotic forms of animal life existed in the study area. According to Mosimann and Martin (1975), there were three genera of elephants, six genera of giant edentates, 15 genera of ungulates and various giant rodents and carnivores north of Mexico. Surely many of these were forest denizens and occurred in the study area. Maps presented by Simpson (1945) indicate that the genus Tapirus (tapirs) occurred in the study area. Mosimann and Martin (1975) stated that four genera of giant ground sloths were present in the United States, including Megatherium. As the study area was forested, it is highly probable that these forms did exist in the study area. Simpson (1941) stated that three large felines also inhabited the area. These include the puma (Felis concolor), jaguar (Panthera onca) and the giant jaguar (Panthera atrox).

By 15,000 BP the large megafauna had given way to the faunal species found during modern times.

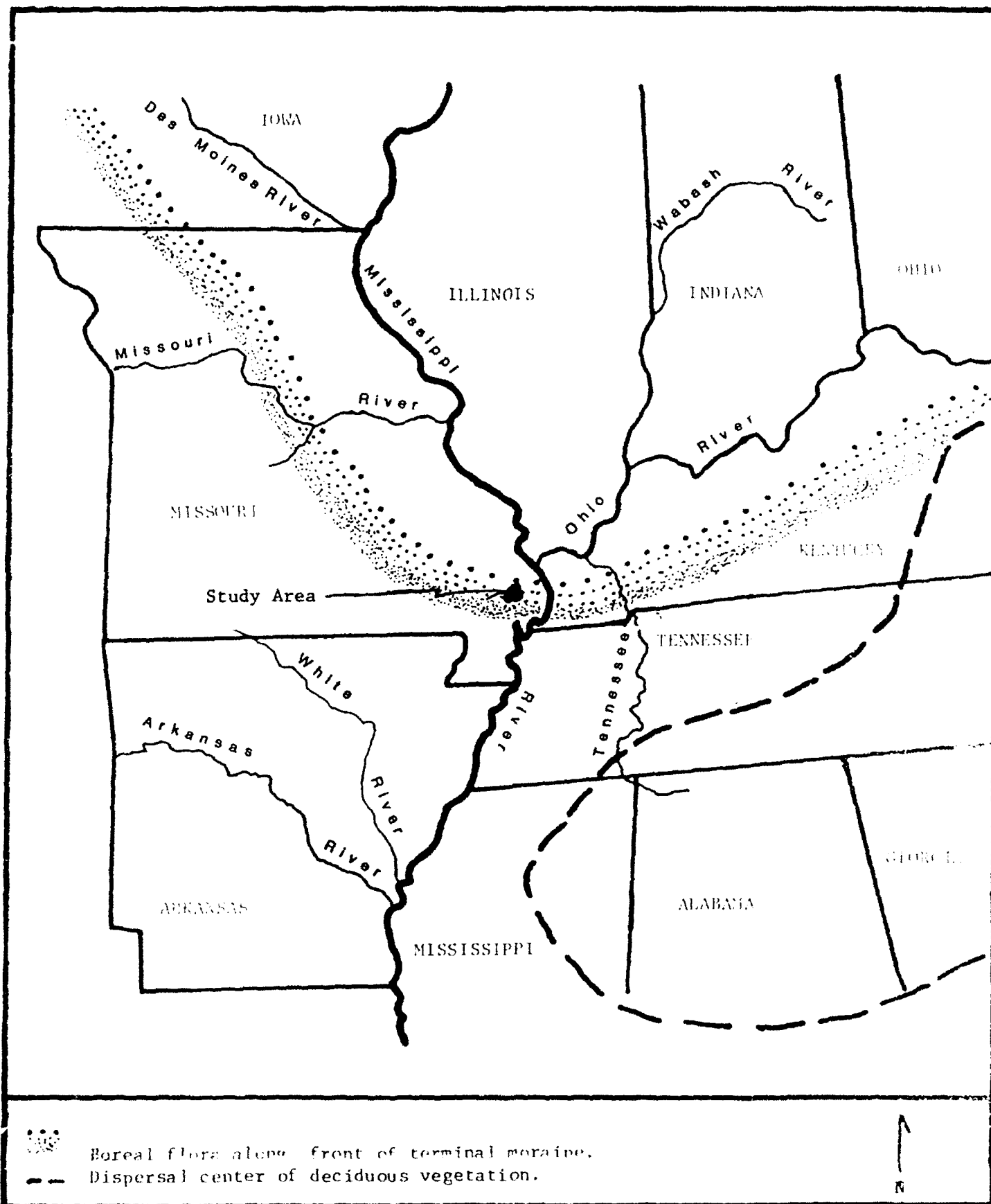


Figure 3. Pleistocene vegetative migration map for the study area (from Harshberger 1958).



## Historic Environment

### Climate

The average winter low temperature is  $-3.30^{\circ}\text{C}$  ( $26^{\circ}\text{F}$ ) with an average daily temperature of  $2.22^{\circ}\text{C}$  ( $36^{\circ}\text{F}$ ). The average high temperature in the summer is  $31.67^{\circ}\text{C}$  ( $89^{\circ}\text{F}$ ) with a daily average of  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ). Annual precipitation for the study area averages near 1.17 meters (46 in.). Snowfall is generally from 15.38 to 28.21 centimeters (6-11) per year. The prevailing wind is from the southwest (U.S.D.A.-S.C.S. 1981:2-3).

### Flora

When Louis Lorimier founded Cape Girardeau in 1793, he noted the presence of various types of flora in the area (Houck 1908:Vol. I, p. 170). Plants observed growing on the edge of the lowlands included tulip trees (Leridendron fulifera), ash (Fraxinus sp.), hickory (Carya sp.), hackberry (Celtis sp.), elm (Ulmus sp.), sassafras (Sassafras sp.), mulberry (Morus sp.), paw paw (Asimina sp.), and beech (Fagus sp.). Cane (Arundinaria sp.) was noted in the creek bottoms.

The study area is located in Harshberger's (1958) Lower Alluvial Forestland of the Arkansas-Louisiana District and in the Southeastern Lowlands area on former, now-drained swampland. The dominants include Bald cypress (Taxidium distichum), oaks (Quercus lyrata, Q. phellos, Q. nigra), hickory (Carya aquatica), swamp cottonwood (Populus heterophylla), maple (Acer rubrum), gum (Nyssa sylvatica), ash (Fraxinus tomentosa), buttonbush (Cephalanthus occidentalis), honey locust (Gleditsia aquatica), Planer tree or water elm (Planera aquatica), wisteria (Wisteria macrostachya), grape (Vitis palmata) and Corkwood Leitneria floridana (Harshberger 1958; Steyermark 1963).

In addition to the above, Steyermark (1963) lists the following dominant herbaceous and aquatic species: Giant cone (Arundinaria gigantea), Beak-sedge (Rhynchospora), Caric sedge (Carex louisianica), Wolffiella floridana, Hymenocallis occid, Iris (Iris fulva), Thalia dealbata, fanwort (Cambomba carolinians), Linceolata, Seedbox (Ludwigia glandulosa), Button crynge (Eryngium prostratum), Cadium digitatum, Lysimachia radicans, Asclepias pere, Hydrolea uniflora, Swamp water willow (Justicia ovata), Buttonweed (Diodia virginiana), Candia uniflora, Cayaponia grandifolia, Spilanthes anea var. repens and Camphor weed (Pluchea camphorata).

This type of forest provides an abundance of berries and nuts, as well as providing an excellent cover for game. Also various medicinal and poisoning species are present in such a forest.

### Modern Fauna

As the study area is located close to the Mississippi River, a vast amount of aquatic fauna is present. Fishes includes the following families: sturgeon (Acipenseridae), paddlefish (Polyodontidae), bowfish (Amiidae), pickerel (Esocidae), suckers (Catostomidae), catfish (Ictaluridae), temperate basses (Percichthyidae), sunfishes and bass (Centrarchidae) and drum (Sciaenidae). Turtles include snapping turtles (Chelydridae) and softshell turtles (Trionychidae). The frogs include the family of true frogs (Ranidae).

The invertebrates include the clams (Phylum pelecypoda) and crayfish (Cambrus and Procambrus).

Terrestrial fauna available as a food source are limited to the aves and mammalia. Many families of avifauna may have been utilized as a food source. Families used today include ducks, geese and swans (Anatidae), turkey (Meleagridae), quail (Phasianidae) and dove (Columbidae).

Mammalian families utilized today include squirrels (Sciuridae), rabbits (Leporidae), raccoon (Procyonidae), bear (Ursidae) and deer (Cervidae). Also possibly utilized was the dog (Canis domesticus).

#### Human Settlement and Habitat Exploitation

Because it is unlikely that any physiographic features can be found near the surface that predate the first occurrence of the Mississippi River stages, no evidence of man predating 7000 to 6000 BP is anticipated. Further, because it is unlikely that any deposits on or near the surface predate the alluvial fan of the J stage, no evidence of man is anticipated to predate 5300 to 4500 BP.

Throughout the history of the study area (at least since 7000 BP) the region is believed to have been a riverine and/or backswamp environment. There were no prominent denoted land forms other than levee deposits. Human habitation would have been difficult due to seasonal flooding and the abundance of distracting or harmful animals such as mosquito, gnats, biting flies and poisonous snakes. However, this type of habitat would have provided economic support for hunting and gathering societies.

Many of the dominant trees produce nuts, such as acorns and hickory nuts, in addition to the berries found in the understory, such as haws, blueberries, blackberries and grapes. Plants in the backwater and the adjacent uplands also possessed properties as poisons and medicines. In general, the study area and the adjacent uplands were capable of providing many of the botanical needs of a gathering society. The animal resources in the area were extensive and varied with abundant deer, squirrel, bear, fishes and other fauna providing a viable animal protein pool.

Therefore, it is speculated that the prehistoric Native-American population resided in the uplands and entered the lowlands to gather and hunt. These forays were probably limited by seasonal flooding as well as the seasonal availability of natural resources. Camps were probably small, temporary and placed on natural levees. They may have been in low lying, flat areas near specific resources during intervals when flooding or the threat of flood was minimal.

For early Euro-Americans the study area offered only habitat for selected resources such as foodstuffs, fur-bearing animals and forest products. It was not until the region was ditched and leveed, as evidenced by the presence of Orthents-Water Complex soils, that it became a suitable environment for permanent settlement and modern agriculture. Thus, historic materials predating the early 1900's are expected to be sparse and to be evidence of casual, temporary land use and resource exploitation.

## PREVIOUS INVESTIGATIONS

### Previous Archeological Investigations

American archeology as a scientific discipline is a relatively recent phenomenon. According to Willey and Sabloff (1974:40), "As of 1840, American archaeology as a scholarly entity simply did not exist." As the United States expanded its boundaries westward, it became apparent that North America possessed copious remains of prehistoric peoples in the form of mounds, earthworks and large village sites. An increased interest in the discovery and description of antiquities followed and developed into what is described by Willey and Sabloff (1974:42) as the Classificatory-Descriptive Period (1840-1914) of American archeology. During this time archeology became an established vocation. Museums, universities, scientific societies and government sponsored expeditions were designed to locate and record sites and collect specimens for their collections.

It was during the Classificatory-Descriptive Period that the first systematic study of the prehistory of the Mississippi Valley was conducted. Squier and Davis (1848) were commissioned by the Smithsonian Institution, with the support of the American Ethnological Society, to examine the mounds of the Ohio and Mississippi River valleys in order to address the question of the origin of these tumuli. Although they believed they were constructed by a great race of mound builders, their study represents the first regional study of the antiquities of the Mississippi Valley and resulted in an impressive number of site plans along the Mississippi River.

Toward the end of the 19th century a number of investigations were carried out. Evers (1880) conducted a study of pottery vessels collected in southeastern Missouri. It is early studies like this which provided the basis for later interpretations of artifacts in adjacent areas such as northeast Arkansas.

William H. Holmes (1886) published his study of Mississippi Valley ceramics in which he divided the valley into upper, middle and lower provinces. The majority of his sample was taken from the Middle Mississippi Province in which Nash Well Relief is located. Holmes (1886:371) described this province as "remarkably homogenous." His (1903) later work on pottery of the eastern United States subdivided the Middle Mississippi Province into several regions which were based on environmental rather than typological criteria.

Louis B. Houck recorded or documented the locations of many prehistoric mounds and prehistoric non-mound sites in the late 19th and early 20th centuries (Houck 1908). Although many of these sites are in the vicinity, none is within the project areas.

During the period 1910-1911, Clarence B. Moore (1911) conducted a series of investigations throughout the southeastern United States, including the Mississippi Valley. On one such trip Moore attempted to record all prehistoric sites within three miles on each side of the Mississippi River from New Orleans, Louisiana, to a point somewhat above Wilson, Arkansas, not far from the southeastern boundary of Missouri. Emphasis was placed on descriptions of burials and associated ceramics rather than theoretical advancement.

Recent cultural resources investigations more closely related to the study area have been conducted in Scott and Cape Girardeau Counties. The most notable of these was conducted in 1979-1980 (McNerney and White, 1982a). This survey involved levee berm items which included a survey of the areas within proposed ditches A, B, C and D. Several sites, both historic and prehistoric, were recorded; however, none fall within the current study areas.

Surveys and reports conducted and/or prepared in the study area vicinity include: water system improvements for the town of Fruitland, Missouri (Price and Price 1981); Mississippi River levee surveys above the mouth of the Ohio River (McNerney 1977; McNerney and Fischer 1978); investigations of the proposed Interstate 55 (Marshall 1965b); predicting cultural resources in the St. Francis Basin (Dekin et al 1978); an assessment of the proposed magistrate court building and related buildings in the town of Benton, Missouri (Harris 1977); a sewage treatment facility and expanded water supply in Miner, Missouri (Price 1976); the St. Johns Bayou-New Madrid Floodway (McNerney 1979); the preliminary draft Missouri State Plan (Weichman 1982); the Scott City community park development project (Grantham 1981); the Waters Park, Commerce, Missouri (Cole 1980); proposed waste water facilities in Benton, Missouri (Cooley and Fuller 1979); subdivision development in Scott City, Missouri (Price 1979); the sewer interceptor extension in Illmo, Missouri (Browman et al 1977); and an archeological architecture and historic resources survey of the New Madrid Floodway (McNerney and White, 1982b).

As a result of these surveys, numerous sites in the vicinity of the project area were documented. However, none is within the areas to be affected by the Nash Well Relief project.

A brief history of the Little River Drainage District was prepared by Schultz (1973). An excellent overview of Missouri in two volumes was prepared by Chapman (1975, 1980).

## CULTURAL SEQUENCE

### Prehistoric Sequence

The prehistoric sequence which follows is organized into six temporal periods: Early Man, Paleo-Indian, Dalton, Archaic, Woodland and Mississippian. These temporal periods are also defined as cultural traditions by most archeologists.

#### Early Man (12,000+ BC)

The archeological record documents man's presence for at least the last 12,000 years in North America. It has long been debated whether the record is older. Recent research in the midwestern and northeastern United States indicates man has occupied these regions longer than previously believed. The Schriver Site in northwest Missouri contains an archeological horizon below a fluted point horizon (Reagan and Evans 1976). The lower horizon has been dated at 18,000 BP by thermoluminescence (Reagan and Evans 1976:149). Slightly earlier dates have been reported from the lower levels of the Meadowcroft rockshelter in Pennsylvania (Adovasio et al 1975). The context of cultural material and the dates from these early horizons at both sites have

been challenged. However, they do show that the early portion of the well-established prehistoric chronology of the midwest may be subject to revision in the future.

If materials from this period are present in the cultural study area, they would, as suggested by Tandarich and Reagan (1978:23), be buried beneath the materials of Saucier's (1974:17) Braided Stream Terrace, which predates 8,500 BP.

#### Paleo-Indian (12000-8000 BC)

The original discoveries of the earliest occupation of man were in the High Plains, where a distinctive style of projectile points was found in association with now extinct mammals. The sites were various locations at which large Pleistocene mammals had been ambushed and killed. The projectile points found with the animals were large, well made, fluted lanceolates (Haynes 1964). It is generally believed that during the Paleo-Indian period small bands of individuals followed the big game in a nomadic pattern. Thus, the settlement patterns of the Paleo-Indian would have been a series of small campsites located over the areas where the herds congregated, such as water sources.

Evidence of early man in the Midwest primarily consists of fluted points found on the surface of upland sites near major streams (Griffin 1952:353; 1968:125-126). Chapman's (1975:Figure 4-3) survey of the fluted points found in Missouri shows only two from the Bootheel Riverine Locality of the Southeast Riverine Region, one from Scott County and one from New Madrid County. None have been found in Cape Girardeau County.

#### Dalton (8000-7000 BC)

Chapman (1975:96) has proposed that the Dalton period represents a time in Missouri during which the climate was beginning to change to a post-glacial pattern, and the prehistoric groups were beginning to adapt to the local environment. The occurrence of the Dalton projectile point coincides with this period. The archeological evidence suggests that the settlement pattern consists of small, transitory campsites. The tool kits of the Dalton groups do not significantly differ from the preceding Paleo-Indian period, suggesting a continued dependence on the hunting of game. It seems probable, however, that more efficient exploitation of local environments was occurring.

As indicated by Morse (1971), Dalton settlement was virtually composed of sedentary bands occupying distinct drainages. An alternative hypothesis implied by Schiffer (1975) indicates that those groups of Dalton were indeed sedentary but that it is unlikely that they would demarcate their social boundaries in regard to drainage basins "unless it was adaptively propitious to do so" (Schiffer 1975:256). He (Schiffer) argues that the banana shaped basins present within the western lowlands would not have formed natural liveable units as varying drainage basins do contain varying amounts of the available and exploitable resources necessary for the basic survival of the band. He (Schiffer 1975:164) concludes that these Dalton groups or bands occupied territories which did indeed cross-cut major physiographic and/or resource zones, regardless of drainage boundaries.

The Southeast Riverine Region appears to have a concentration of Dalton Serrated Points similar to those found in the Lower Missouri Valley. In the Bootheel area Dalton points, which may represent an intermediate form between Clovis fluted and Dalton serrated, have been found (Chapman 1975:125). According to Chapman (1975:126) archeological evidence for the Dalton culture in the Bootheel region is very incomplete at this time and most inferences regarding this culture must be made from collections from nearby areas, especially northeastern Arkansas. Grantham (1980:7) points out that no separate Dalton period is yet identified for the area.

#### Archaic (7000-1000 BC)

Throughout the eastern United States the Archaic is marked by the development of regional cultural traditions (Caldwell 1958; Dragoo 1976:11). The various communities of plants and animals upon which prehistoric populations were dependent reached their modern distribution near the close of the Archaic period. In the midwest, however, a period of climatic stress occurred during the first half of the Archaic period. Depending upon the region, various adaptive strategies were developed to meet this climatic stress. Overall, during the Archaic, prehistoric societies began to successfully exploit their local environment. This long sequence is divided into three parts: Early, Middle and Late.

Price, Morrow and Price (1978:53) report that Archaic Components are extensive in the Cape Girardeau area, but not distinguishable as to which period or periods are represented. Chapman (1975:157) states that this period has been largely neglected, probably because the sites are often deeply buried beneath deposits laid down toward the end of the period. He believes that in the Southeast Riverine Region old soil surfaces, particularly the old natural levees along small streams, are the most likely areas to find Early Archaic sites.

Early Archaic Period (7000-5000 BC). The climatic pattern of warming and/or drying began to have a substantial effect on the environment of the Midwest during the Early Archaic. Large areas were invaded by prairie, which progressively moved east (Wright 1968; King and Lindsay 1976). The archeological evidence suggests that, depending upon the local changes in the environment, prehistoric populations began to rely more on the local resources (Dragoo 1976; Griffin 1968). In Missouri, the settlement patterns do not substantially change from the preceding periods. Sites are small and are inferred to be mainly small transitory hunting camps, with a few strategically located base camps (Chapman 1975:128).

Dalton materials as well as Hardin, Cache River and Graham Cave points are found in sites of this period (Grantham 1980:7).

Middle Archaic Period (5000-3000 BC). Modern distributions of plants and animals were established near the end of the Middle Archaic (King and Lindsay 1976; King and Allen 1977). Archeological evidence in the Midwest suggests that subsistence practices had shifted to intensive utilization of localized resources. The forest and riverine environments were particularly favored, offering a variety of fauna and a select group of high yield floral resources (Asch, Ford and Asch 1972). Important additions to the Archaic cultural tradition are ground stone implements utilized for processing plants

and for manufacturing wood artifacts. Also, the first evidence of burials is found during the Middle Archaic (Griffin 1968:133).

Systematic archeological research has not been conducted in the Bootheel Region of Missouri (Chapman 1975:177). In fact, more is known concerning this period from Illinois sites, particularly by the Modoc shelter (Fowler 1959a and b) and the Faulkner site (Cole et al 1951; MacNeish 1948) than those in southeast Missouri. It is clear from these investigations that Middle Archaic peoples did live in the Mississippi drainage on the east side of the Mississippi River. However, the limits of this manifestation beyond this area is not known at the present (Chapman 1975:133).

Late Archaic Period (3000-1000 BC). By the Late Archaic period most Archaic groups had reached a successful subsistence seasonality strategy within their respective regions. This resulted in stable settlement patterns, increased population, established social institutions and extensive trade relationships with surrounding groups (Griffin 1967:178; Dragoo 1976). Also, burial ceremonialism was an important institution. These regional cultural traditions provided the foundation for subsequent Woodland developments.

According to Chapman (1975:224) this period has been largely neglected in the Southeast Riverine Region of Missouri. He suggests two reasons for this: 1) most Archaic sites have been deeply buried by later deposits and 2) much attention has been focused on the later spectacular Mississippian sites.

Sites of this period are designated the O'Bryan Ridge Phase and are related to Poverty Point (Price, Morrow and Price 1978:54). Found at sites of this phase are large and small stemmed and notched points, full grooved axes, bannerstones and Poverty Point objects (Grantham 1980:7).

Surrounding regions have yielded a variety of local traditions. Generally, several types of sites are located near important resources, so that the settlement pattern is composed of small extractive and processing camps and larger semi-permanent base camps (Winters 1969).

#### Woodland (1000 BC - AD 900)

The Woodland period is marked by several changes. These include the introduction of ceramics, the development of incipient agriculture, a move towards a more sedentary lifestyle, an increase in differential mortuary treatment, an increase in interregional trade and the construction of large earthworks.

Researchers in southeastern Missouri have commonly referred to this period as Baytown (McNernery 1979; 1982a and 1982b; Griffin 1952; Tandarich and Reagan 1978). However, as there is also a Baytown phase found further south in the Lower Mississippi River Valley, the term Woodland will be used throughout the following discussion.

Early Woodland Period (1000 BC - 500 BC). The once clear division between Archaic and Early Woodland complexes that was thought to exist has come under recent scrutiny (Dragoo 1976). Traits that were once believed to be indicative of Early Woodland are now shown to have long histories in the Archaic period. The only obvious addition to the Early Woodland complex is

the addition of ceramics (Dragoo 1976). However, the Early Woodland period in the Southeast Riverine Region may predate the introduction of pottery (Chapman 1980:16). The Burkett phase which has been generally dated at 300 B.C. to A.D. 100 (McNerney 1979:4; Tandarich and Reagan 1978:25; McNerney and White 1982a:18) is the only presently known possible manifestation of Early Woodland in the area. If this phase, which is marked by Mulberry Creek Cord-Marked, Withers Fabric-impressed, Baytown Plain and Cormorant Cord-impressed is indeed Early Woodland it is a late expression of the period. Carbon 14 dates have been obtained which gives dates of B.C. 190  $\pm$  250 and 70  $\pm$  200 A.D. (Phillips 1970:877). These would place the phase at the end of Early Woodland and on into Middle Woodland.

There is little evidence indicating changes in settlement patterns or population size from the preceding Archaic period (Dragoo 1976). It has been hypothesized that during the Early Woodland period, families possibly abandoned their summer encampments and dispersed to winter hunting camps (Faulkner 1977).

Intensive exploitation of natural resources (Faulkner 1977) appears to have been the norm. Combined with the exploitation of forest and prairie resources was the cultivation of squash, gourds, sunflower (*Helianthus*), goosefoot (*Chenopodium*), canary grass (*Phalaris*) and possibly marsh elder (*Iva*). These cultigens had been introduced in the Late Archaic (Yarnell 1964).

Very little data is available on Early Woodland social structure. This appears to be due to the lack of formal mortuary site analysis (bio-archeology). The evidence of mortuary ceremonialism during the Archaic and Early Woodland period, however, points to differential treatment of the dead. This would indicate some form of a ranked system of social organization.

Middle Woodland Period (500 BC - AD 400). The Middle Woodland Period in the Southeast Riverine Region is made up of the Burkett, Ten Mile Pond and Barnes' Ridge Phases (Chapman 1980:61-65). The Burkett, which overlaps with Early Woodland, ends about A.D. 100 (McNerney 1979:4). Following this phase is the Ten Mile Pond which dates from approximately A.D. 100 to A.D. 400. During this period, lithic and ceramic changes occurred. Barnes Series, Mulberry Creek Cord-marked and Baytown Plain dominate the ceramics, while other types found earlier are virtually non-existent. Side and corner notched points replace stemmed points (McNerney 1979:4). The presence or absence of mounds is speculative (Chapman 1980:63).

Hopewellian Interaction Sphere pottery is an indication of the next phase, the Barnes' Ridge. The pottery of this period is predominately Korando Cord Marked and Westlake Plain. Also present are Withers Fabric Impressed and Cormorant Cord Impressed in smaller percentages. Other marked types for the phase are Havana Zoned Punctate, Naples Ovoid Stamped, Havana Zoned Dentate Stamped, Havana Zoned Cord-wrapped-stick, Havana Zoned Incised, Brangenburg Plain and Hopewell River (Chapman 1980:65). Although these wares occur, they do not occur in any quantity (Williams, J. R. 1971; 1972; 1974). It would appear that the people of the Barnes' Ridge Phase remained generally unaffected by the introduction of the new pottery types and that Hopewellian influence was not as strong as in the areas to the north (Chapman 1980:65; McNerney and White 1982a:19).



At the present time no information is available regarding subsistence base and socio/religious organization (McNerney 1979:4).

Late Woodland Period (AD 400 - 900). The Hoecake phase is the only phase associated with the Late Woodland period in the Bootheel Region of Missouri (Chapman 1980:268). Extensive excavation at the Hoecake site has provided most of the data for this period. Traits of this phase are: 1) cord-marked or plain ceramics; 2) Kersey clay objects; 3) a varied lithic industry containing Burkett Stemmed and Gary Stemmed dart points, Mississippi triangular arrow points, flake snubbed-end scrapers, hoes and discoidals; 4) small, rectangular, semi-subterranean houses with a single row of posts along the outer edges; 5) basin-shaped shallow refuse pits sometimes in the house; 6) bell-shaped pits appear for the first time; 7) hearths are never in the house; 8) an increase in the size of villages; and 9) conical mounds containing log-lined subsurface tombs and burials. Mounds were large being from 60 to 80 feet in diameter and 12 to 25 feet high (Chapman 1980:135). Radiocarbon dates encompassed the whole of the Late Woodland Period ranging from A.D. 420  $\pm$  80 to 1185  $\pm$  95 (Chapman 1980:271-272).

#### Mississippian Period (AD 900 to 1450)

The Mississippian Period probably lasted from AD 900 to AD 1450. It is marked by the introduction of shell-tempered pottery, intensive agriculture, exploitation of varied resources, increased socio-political organization, large town sites (civic-ceremonial centers) and intensive trade along major river systems in the Eastern United States.

Early Mississippian Period (AD 900 - 1200). According to Chapman (1980:185), it is almost impossible to separate the various phases of this period in the alluvial valley area from Cape Girardeau southward. A number of researchers list only one phase for the area, the Cairo Lowland (McNerney 1982a:21; McNerney 1982b:58; Marshall 1965a:70-73; Cottier 1977:51-58). Phillips gives two phases: the Cairo Lowland and Pemiscot Bayou (1970:925-926; 928-929; figure 447). Chapman bases his phases on major civic-ceremonial centers and their satellites, calling each of these a phase (1980:185-186). For the Cape Girardeau area the Hunze aggregate I is the phase name (Chapman 1980:186).

The Cape Girardeau area possesses mounds and village sites which have produced evidence suggestive of an Early Mississippian occupation. However, the dating of materials from these sites is by inference only. The association of the artifacts with ceremonial structures, that were apparently used as the base for chief's houses or temples and the burial of elaborate offerings with the dead, indicate these sites belong to the climax of development of the Mississippian Tradition (Chapman 1980:186).

It is suggested that sites in the Cape Girardeau vicinity belong to the late part of the Early Mississippi and the early part of the Late Mississippi (Chapman 1980:186). According to Chapman (1980:186), much more information is needed before a phase can be defined for the archeological manifestations of the Mississippian Tradition in the Cape Girardeau area.

Late Mississippian Period (AD 1200 - 1450). During the height of this period there was a population shift within the Southeast Riverine Region

with some groups moving to areas that had not been heavily occupied previously. The large civic-ceremonial centers disintegrated and populations dispersed. Fortifications were abandoned at some of the towns (Chapman 1980: 260-261).

At the present time it is not possible to separate the occupations of the various centers in the Bootheel Region into chronological phases and very little is known. It has been suggested that the decline of groups during this period may have been the result of a drought (Krieger 1946; Baerreis and Bryson 1956) or epidemic diseases in the over-crowded civic-ceremonial centers (Chapman 1980:256).

### Historic Indians

#### Protohistoric and Early Historic Indian Period (AD 1550 - 1750)

Most of the Southeast Riverine Region appears to have been abandoned after 1350. Evidence for occupation has been found only in the extreme southern portion of the Bootheel (Price, Morrow and Price 1978:64). The historic cultural group to which these few (six) sites were allied has not yet been determined. Further, there is no record of Indian groups in Southeast Missouri in the accounts of early explorers (Price, Morrow and Price 1978:72). Marquette and Jolliet recorded the presence of a group of Indians owning a large quantity of trade goods along the Mississippi River just below the mouth of the Ohio (Phillips, Ford and Griffin 1951:395-396). However, it is not clear which side of the river these people were on and it is not believed that they were habitants of Southeast Missouri (Price, Morrow and Price 1978:72-73).

#### Historic Indian Period (AD 1750 - Present)

Following the early historic occupation discussed above, there appears to have been an abandonment of the Southeast Missouri lowlands. No evidence of aboriginal settlement occurs until the late 18th and early 19th centuries. The area may have been sporadically used by Indian groups for the utilization of natural resources, but no definitive evidence of this occurs.

During the latter part of the 18th century, Delaware and Shawnee began moving from the east into the area. Houck (1908:volume 1 page 208) places these groups in Mississippi County, Missouri, by 1788. In 1793 Louis Lorimier established a trading post near present day Cape Girardeau and settled there with a group of Delaware and Shawnee. These Indians were given a tract of land, by the Spanish, lying between Cape Girardeau and the River Saint Comme and the Mississippi River and Whitewash River (Price, Morrow and Price 1978:77).

The settlements in these treaty lands along Apple Creek were the major settlements in Southeast Missouri of the two groups. About 1815 the Delaware abandoned their claims and in 1825 the Shawnee ceded their lands by treaty to the United States Government (Price, Morrow and Price 1978:77). Several other villages were located in Southeast Missouri, but none in the study area.

None of the villages in Southeast Missouri have been located archeologically and none of the locations confirmed (Price, Morrow and Price 1978:79).

## Historic Sequence

### Early Explorers (1650-1699)

Marquette and Joliet are the first Europeans known to enter Missouri. They discovered the confluence of the Mississippi and Missouri Rivers in 1673 (Meyer 1973:30-31). In 1682, La Salle and Tonty descended the Mississippi River to its mouth and claimed the entire region for France (Meyer 1973:31-32). The last explorer during this period was Joutel who navigated up the Mississippi River in 1686 (Meyer 1973:32).

### French Period (1655-1770)

In an effort to develop an overseas empire in North America, France was especially concerned with control of the Mississippi Valley and the tributaries of the great river. Control of these waterways would enable France to develop the natural resources of the area (e.g., furs, minerals), secure a trade outlet via the Mississippi and limit the spread of English settlements (Meyer 1973:28).

Colonization of the region began in 1699 when a settlement was established at Cahokia on the east bank of the Mississippi River, approximately 122 miles north of the project area. In 1700, Kaskaskia was founded just a few miles south of the Cahokia settlement, also on the east bank of the Mississippi River (Meyer 1973:33).

The first French settlement west of the Mississippi occurred about 1700, when a small group of Frenchmen resided at an Indian village on the Des Peres River, present-day St. Louis. This encampment was abandoned in 1703 (Meyer 1973:33).

The economy of Colonial Missouri centered around farming, fur trade and lead mining. To a lesser extent, salt making was practiced. In 1720, Philippe Renault began lead mining operations at Mine La Motte, approximately 45 miles northwest of the project area. He employed 200 workers, bringing mining tools from France and Negro slaves from the West Indies. The mines at Mine La Motte were in operation for about 20 years (Meyer 1973:33-34).

The first permanent settlement in Missouri was established in 1735 at Ste. Genevieve, approximately 45 miles north of the project area on the west bank of the Mississippi River. The presence of salt springs and lead mines in the area were probably responsible for the location of the town. Trails from Mine La Motte to Ste. Genevieve turned into roads and the town became the exporting settlement for lead (Meyer 1973:74). Salt was processed from springs south of Ste. Genevieve and along the banks of Salt River. This commodity was also transported to Ste. Genevieve (Meyer 1973:75).

As a result of the French and Indian War (1754-1763), France lost all of her lands east of the Mississippi to Great Britain. With the loss of her eastern North American possessions, it seemed futile to France to try to retain those lands west of Mississippi. Also the huge territory of Louisiana had been a financial drain on France for years. In 1762, the Treaty of Fontainebleau was signed. This treaty transferred ownership of all lands west of the Mississippi from France to Spain. By this time the area was known as

the Louisiana Territory. Although the treaty was signed in 1762, the actual transfer did not occur until 1770 (Meyer 1973:42).

In 1764, St. Louis was founded on the west bank of the Mississippi River, approximately 130 miles north of the project area, by Laclede and Chouteau. When these two fur traders visited Ste. Genevieve in 1763, they discovered that there were not enough buildings in the community to store their furs. As a result, they founded their own settlement at a place on the Mississippi River where boats could easily unload their cargoes and where the ground was high enough to avoid flooding (Meyer 1973:38).

During the French colonial period the project area was part of a vast marshy region known as the Great Swamp. It was not suitable for farming and there were no known natural resources such as lead or salt to be mined. It is possible that occasional forays into this area to exploit cypress and other trees, as well as various types of fauna were carried out.

#### Spanish Colonial Period (1770-1804)

Spain assumed control of the Louisiana Territory on May 20, 1770. This territory was divided into two areas, Upper Louisiana and Lower Louisiana. The project area is located in the area known as Upper Louisiana. Although the government of Upper Louisiana was Spanish, the people were predominantly French (Meyer 1973:45-46).

For administrative purposes, Spain divided Upper Louisiana into five districts: St. Charles, St. Louis, Ste. Genevieve, Cape Girardeau and New Madrid. The project area is located in that area, which was the Cape Girardeau District (Meyer 1973:48-49).

Permanent settlement in the general vicinity of the project area began with the establishment of the town of Cape Girardeau in 1793 (Douglass 1912:67). Louis Lorimier, who was considered a valuable ally of Spain because of his control of many Indian groups, was granted exclusive trading rights with the Shawnee and Delaware Indians residing between the Mississippi and Arkansas Rivers. In order to conduct trade with these groups, Lorimier set up his trading post on the Mississippi River at Cape Girardeau (Meyer 1973:35-36).

Following the Revolutionary War, Americans were settling in the Ohio River Valley by the thousands. By 1785, at least 50,000 pioneers had settled in this area (Meyer 1973:110). In 1795, the Pinckney Treaty granted Americans use of the Mississippi River to transport their goods to New Orleans. This opened the door for increased activity in the area.

In the Cape Girardeau District farming was the major occupation. As early as 1802, Americans were farming the area and producing a surplus which was exported down the Mississippi River to New Orleans (Sneider and Collins 1956:201).

Ramsay's Settlement, about three miles southwest of Cape Girardeau, was settled in 1795 by Andrew Ramsay, who moved from Kentucky (March 1967:Vol. 1, 100). This was the first settlement in the immediate vicinity of the project area, being located along Ramsay's Creek just to the northeast of the study area.

Ramsay encouraged Americans to settle in the area and even escorted them personally to desirable areas (Houck 1908:Vol. 2, 182-183).

On October 1, 1800, the Treaty of San Ildefonso between Spain and France was signed. Under the terms of this agreement, the Louisiana Territory was returned to France in return for Tuscany in Italy (Meyer 1973:109). In 1803, the United States obtained Louisiana from France through the Louisiana Purchase Agreement for the sum of fifteen million dollars (Meyer 1973:112).

The project area still remained unsettled. Due to the increase in population of the area, settlement was inching closer all the time.

#### American Territorial Period (1804-1821)

Although the United States obtained the Louisiana Territory from France in 1803, she did not assume control until March 10, 1804. This vast region was divided into two sections, the District of New Orleans south of the 33rd parallel and the District of Louisiana of the Territory of Indiana to the north of this parallel. The project area is located in what was known as the District of Louisiana. In 1805, the District of Louisiana became the Territory of Louisiana and St. Louis was designated the capital (Meyer 1973:117).

The popularity of the area is reflected in the dramatic increase in population. From 1800 to 1820, the population increased from 7000 to 67,000 (Meyer 1973:136).

It was during this territorial period that the area became American in culture. In 1804, the population was almost equally divided between French and Americans. By 1821, Creoles constituted less than 10% of the population (Meyer 1973:138).

On December 15, 1811, a major earthquake occurred in southeast Missouri with additional tremors throughout the year and another violent eruption in 1812 (Fullen 1912). This incident, referred to as the New Madrid Earthquake, negatively affected settlement of parts of southeast Missouri. Many settlers left their homes because of fear of future earthquakes or because the change in the course of the Mississippi River had turned their farms into swamplands. Farms were often sold at far less than market value and much of the area was purchased by land speculators (Meyer 1973:122).

The extent of this earthquake was enormous. The New Madrid Earthquake was stronger than the one in San Francisco a century later and tremors were felt as far away as South America. Reports of the period relate how the Mississippi River ran backwards for a time (Meyer 1973:121). The major damage was in the New Madrid area and in Pemiscot County. According to an article in the New York Evening Post dated March 11, 1812, the ground in some places had sunk so low that the tops of the tallest trees could hardly be seen above the water. Houses of brick, stone and log were torn to pieces and those of frame tossed on their sides. Many citizens fled to the mountains.

Increased settlement during the early 1800's is indicated by the creation of five counties in 1812. These counties were St. Charles, St. Louis, Ste. Genevieve, Cape Girardeau and New Madrid (Map of the Missouri Territory in 1812; on file at the State Historical Society of Missouri). The project area

was located in portions of Cape Girardeau and New Madrid Counties. Also in 1812, the Territory of Louisiana was changed to the Territory of Missouri as the District of New Orleans had been admitted to the Union as the state of Louisiana (Meyer 1973:117-118).

Initial U.S. surveys of the area were conducted by the Office of the Surveyor General in order to ascertain what was present in the area and to facilitate the eventual sale of land. The location of federal land offices in Missouri and the dates when they began making sales indicate the process of settlement in the state. Offices were located in St. Louis in 1816 and Jackson in 1818 (Meyer 1973:238). Plat maps dated 1817, 1818, 1819 (on file at the Little River Drainage District, Cape Girardeau), 1820 (U.S. Field Notes - Scott County, pp. 15-16; on file at the Scott County Courthouse, Benton, Missouri) and 1825 (plat map on file at the Recorder's Office, Cape Girardeau County Courthouse, Jackson, Missouri) do not show any settlements in the project area. The only private lands on record in the study area are shown on an 1817 plat map on file at the Little River Drainage District, Cape Girardeau. This map shows that Solomon Thorn owned the northeast quarter of section 28, T30N, R13E and part of section 21, T30N, R13E, a total of 510 acres (600 arpents). The fact that his land is listed in arpents indicates he probably obtained it sometime during the French Colonization Period (1699-1770). On the same map Bartholomew Cousin owned all of section 30 (920.78 acres), T30N, R13E and part of section 25, T30N, R12E.

#### Early Statehood (1821-1860)

Missouri was proclaimed the 24th state in the Union on August 10, 1821 (Meyer 1973:157). Also in that year, Scott County was created from New Madrid County (Meyer 1973:764).

Growth in southeast Missouri accelerated markedly during this period. In 1840, there were between 6 and 18 people per square mile in southeast Missouri. By 1860, this figure had increased to between 18 and 45 (Rafferty 1981:34). From 1820 to 1840, Missouri had climbed from number 23 in terms of population in the United States to number eight (Meyer 1973:236).

Prior to 1830, most settlement in the state was concentrated along rivers such as the Mississippi, Missouri, Gasconade, Osage, White, Current, Chariton, Grand and Salt (Meyer 1973:238). By 1860, settlers had moved in to all sections of the state.

There were basically two kinds of settlements in Missouri during this period. Inland towns and communities functioned mainly as agricultural service centers which provided supplies for local farmers (Rafferty 1981:7). River towns such as Cape Girardeau served as outlets to navigable waterways which were used to transport people and goods.

Inland travel was often difficult prior to the establishment of roads. The area south of Cape Girardeau, including the project area, was still part of the Great Swamp. Trails usually followed small dunes and low ridges as much as possible. In some places poles and brush were placed in low areas to form bridges and roads. These roads have been named corduroy roads. This practice was continued until the swamps were drained in the early 20th century (Sneider and Collins 1956:239-240). According to Sneider and Collins

(1956:240), cypress logs unearthed in the lowlands south of Cape Girardeau may be remains of one of these roads.

One of the reasons for the tremendous population increase in Missouri during this period was the great influx of immigrants from Europe. Settlers from England, Ireland and Germany were the most numerous. In 1848, a large German immigration to Missouri occurred (Meyer 1973:768).

Some of these German immigrants settled in the Cape Girardeau area and were noted for their especially well-built stone houses (Meyer 1973:240). Today German immigrants can be noted through the surnames in tax and census records, and the distinctive architectural styles of the area.

#### Civil War Period (1861-1865)

Due to its proximity to the Mississippi River, the project area was situated in a strategic location during the Civil War. The state of Missouri was one of those slave states situated along the border between the southern slave states and the northern free states. As a result there was sentiment for both the Union and Confederacy in the state. However, the overwhelming sentiment in Missouri was not for secession and no advocate for secession was elected to the State Convention on that question (Meyer 1973:350).

As a result of Confederate sympathizers in the state, particularly those in the state government such as Governor Claiborne Jackson, the Federal Government occupied Missouri in 1861. Federal troops were headquartered at Saint Louis under the command of Captain Nathaniel Lyon (Meyer 1973:353-354).

Skirmishes and battles between Federal and Confederate troops occurred throughout the state, particularly in the west. In 1862 the battle of Pea Ridge in Arkansas effectively ended Confederate schemes for the invasion and occupation of Missouri (Meyer 1973:378).

The citizens of southeast Missouri had to endure constant raids by Southern soldiers collecting supplies as well as raids from citizens who sympathized with the South. The Battle of Cape Girardeau saw the Confederate forces defeated and ended the Marmaduke raids in southeast Missouri.

Cape Girardeau was occupied by Federal troops during the entire war. Four forts, collectively referred to as Camp Fremont (Thilenius n.d.:50-51) and a Union prison (Douglass 1912:258) were constructed in the town. Northern garrisons were also established at Bird's Point in the Bootheel area of Missouri (Meyer 1973:367), and by the summer of 1861 federal forces were in control of the entire state.

#### Reconstruction Period (1865-1870)

The period following the Civil War was one of hardship for Missouri. The area had been ravaged by war and many farmers had to start over without most of their livestock, buildings and, too frequently, members of their family. Organized gangs such as Jesse James and his brothers, Quantrill and the Ku Klux Klan terrorized the state and general lawlessness prevailed.

At the Constitutional Convention of 1865, Missouri became the first slave state to renounce slavery officially (Meyer 1973:407). A clause in the new constitution prohibited all persons who had joined in the war against the United States the right to vote (Meyer 1973:408). The severity of the Constitution of 1865 made reconstruction difficult for Missouri.

During this period there were not only several political parties in Missouri, but there were also various factions operating within each party. This created a political climate that made it difficult to resolve major issues and begin the urgent processes of reconstruction (Meyer 1973:405-406).

In 1870, the Democrats again gained control of the state and the voting restrictions were lifted (Meyer 1973:435). Gradually, the state came out of the bleak period of reconstruction and entered into a period of rapid growth and prosperity.

An influx of immigrants and returning veterans stimulated the economy and boosted the population, though at a slower rate than during the years prior to the war. This trend would continue until about 1900 (Meyer 1973:435).

#### Railroad Period (1870-1905)

In order to attract railroads, Congress enacted legislation in 1853 granting land for railroad right-of-ways as well as every alternate section of land with even numbers for six miles on each side of the track to any railroads completed in Arkansas and Missouri within 10 years of the act (Sneider and Collins 1956:256). The people of Missouri, realizing the importance of railroads to the economy of the state, were adamant in favor of building the railroads.

Although one railroad, the St. Louis and Iron Mountain, ran from St. Louis to Pilot Knob as early as 1857, railroad building was halted due to the Civil War and was not continued until after the process of reconstruction. The major impetus to railroad building in the study area was Louis Houck, one of Cape Girardeau's leading lawyers (Sneider and Collins 1956:258).

In 1880, Houck began his long career in railroad construction. Under his leadership the Cape Girardeau Railway Company was organized and on December 31, 1880, tracks were completed through the project area between Cape Girardeau and Delta (Sneider and Collins 1956:261). In 1882, the name of the line was changed to the Cape Girardeau and Southwestern Railway (Sneider and Collins 1956:262). Between 1893 and 1894, Houck built a line from Kennett to Caruthersville (Sneider and Collins 1956:261).

The Great Swamp area of southeast Missouri contained large amounts of timber, especially cypress. The combination of the railroads and the draining of the swamp made it possible to exploit this major resource. Sawmills and logging became common throughout the area and lasted until the forests were depleted. On a 1901 map of Missouri (on file at the Mapping and Reevaluation Department, Cape Girardeau County Courthouse, Cape Girardeau) a sawmill is depicted in the project area (section 29, T30N, R13E). The location of the sawmill may be buried beneath the Headwater Diversion Channel Levee.



According to Shelby Brown of Jackson, Missouri (1983:personal communication to William Moore), his father used to talk about a hotel at the community of Nash just to the east of the project area. Brown stated that it was common for lumbermen to stay at the hotel while awaiting their orders to be filled.

The building of railroads also stimulated the growth of certain towns. In August of 1905, Chaffee, on the edge of the study area, was laid out on land purchased by the St. Louis and San Francisco Railroad (formerly the Cape Girardeau and Southwestern Railway) (Douglass 1912). Shortly after its establishment Chaffee was made the division point of the St. Louis and San Francisco Railroad and the railroad's repair shops were moved to this point from Cape Girardeau (Douglass 1912:389).

Also in 1905, a railroad bridge was constructed across the Mississippi River at Thebes on the St. Louis and Southwestern Railroad line (Kochititzky 1906). With the completion of the bridge at Thebes, railroad building in the project area was completed. By the end of the railroad period all land in the project area was held by private owners.

#### Little River Drainage Period (1905-1920)

After the lumber companies had cut most of the timber in the Great Swamp south of Cape Girardeau, they found themselves with landholdings that were uninhabitable swampland. Otto Kochtitzky, a lumber company representative suggested that the area be drained to make it available for agriculture (Meyer 1973:456). The lumber companies, wanting to utilize the area, stood behind Kochtitzky's plan. In January of 1905, a group of interested citizens met in Cape Girardeau and discussed the formation of the Little River Drainage District. A petition for the organization and incorporation of the Little River Drainage District was filed in the Circuit Court of New Madrid, Missouri, on September 20, 1905 (Schultz 1973:1).

After considerable opposition, primarily from Louis Houck who took his case to the U.S. Supreme Court, the Little River Drainage District was incorporated on November 30, 1907. The financial possibilities of the proposed drainage system attracted speculators to the area. Much land doubled in value even though the ditches were not completed (Anonymous 1900).

In order to build the vast network of ditches proposed by the Little River Drainage District, it was necessary to excavate a canal to divert the Little River into the Mississippi. At the same time, levees were created for the purpose of retaining the flood waters of the Mississippi and St. Francis Rivers. Ditches were dug at intervals of one mile through the low areas and drainage barriers were constructed to catch the run-off (Meyer 1973:456).

The Little River Drainage District covers parts of seven counties in Missouri: Bollinger, Cape Girardeau, Dunklin, New Madrid, Pemiscot, Scott and Stoddard. The area encompasses about 540,000 acres with only 435,680 acres with assessed benefits and is divided into two areas: 1) the Headwater Diversion System and 2) the Lower District (Schultz 1973:2). The project area is included in both of these districts.

The Headwater Diversion System is located in the extreme north end of the District. Its function is to divert run-off from Castor River near Greenbrier, and other hill streams into the Mississippi River about five miles south of Cape Girardeau (Schultz 1973:3).

The Headwater Diversion Channel passes through the project area in T30N, R13E, sections 26, 27, 28, 29, 31 and 32. When construction was completed in 1920, it had a 90-foot top, a 40-foot berm and a levee with a three-foot horizontal and one-foot vertical side slopes, a crown width of eight feet and an average height of approximately 15 feet. Today the channel has eroded to over 300 feet in width and the berms have vanished (Schultz 1973:4).

The Lower District is that part of the Little River Drainage District south of the Headwater Diversion System which extends south to the Missouri-Arkansas state line. The ditches of this system that pass through the project area are ditches 1, 4 and 8 in T29N, R13E, sections 4, 5, 6, 7 and 8; T30N, R12E, section 12; and T30N, R13E, sections 26, 27, 28, 29, 31, 32 and 33. The Lower District, ditches 1 through 85, inclusive, was also completed in 1920 (Schultz 1973:5). Since the completion of the initial system in 1920, more ditches and retaining basins have been built. The amount of earth moved in constructing this project is said to be more than that moved in constructing the Panama Canal (Personal communication:L. Dowdy, March, 1983). The extremely fertile lands made available to the farmers of Missouri by the Little River Drainage District have contributed significantly to the wealth of the state.

#### Modern Period (1920-Present)

Following the draining of the Great Swamp area south of Cape Girardeau, the project area and vicinity experienced new economic growth as the land was then available for agriculture. The soils in this area are primarily deposited clays, silts and loams which are highly productive when drained (Sneider and Collins 1956:201). Today soybeans, corn and cattle raising are the main agricultural pursuits.

Although the Mississippi River is still an important transportation artery, the combination of a modern highway system and a large nationwide trucking industry has enabled products to be shipped inland more directly. Railroads are still important with tracks of the Missouri Pacific and Saint Louis and San Francisco running through the study area. These trains carry large amounts of goods and trains of over a mile long are commonly seen.

### METHODOLOGY

#### Literature Search

Prior to visiting the project area, several state agencies were contacted in order to ascertain the extent of previous work in the area. The State Historic Preservation Officer in Jefferson City, Missouri, was contacted concerning the presence of a state plan and guidelines for conducting a survey in Missouri. The Archaeological Survey of Missouri in Columbia, Missouri, was retained to check their files for known sites and surveys in the vicinity of the Nash Well Relief project area and the National Register of Historic Places

and its supplements were examined for known sites in the project area. The University of Missouri Press was contacted in order to obtain a list of relevant publications.

Various libraries in Louisiana and Missouri were examined for published archeological and historic references. In Monroe, Louisiana, Sandel Library, Northeast Louisiana University, and Ouachita Parish Library were visited. In Missouri, the Kent Library, Southeast Missouri State University, Cape Girardeau, Missouri, the Cape Girardeau County Historical Society Library (located in the Jackson Public Library), Jackson, Missouri, the Riverside Regional Library, Jackson, Missouri, and the Riverside Regional Library, Benton, Missouri, and the State Historic Preservation Program Library, Jefferson City, Missouri, were visited.

Courthouses in Cape Girardeau and Scott counties, Missouri were examined for original land survey information such as plat maps, surveyors' notes, old maps and patent books. At the Cape Girardeau County Courthouse in Cape Girardeau, Missouri, the Department of Mapping and Reevaluation was visited in order to obtain county highway maps and old maps of the project area. At the Cape Girardeau County Courthouse in Jackson, Missouri the Recorder's Office, the County Clerk's Office and the Assessor's Office were visited. At the Scott County Courthouse in Benton, Missouri the Recorder's Office, the County Clerk's Office and the Probate Office were visited.

State and Federal agencies visited included the Little River Drainage District, Cape Girardeau, Missouri, the United States Army Corps of Engineers, St. Louis District field office, Cape Girardeau, Missouri, Memphis District, Memphis, Tennessee, the United States Department of Agriculture, Soil Conservation Service, Columbia, Missouri, and the Division of Parks and Historic Preservation, State Historic Preservation Program, Jefferson City, Missouri.

Scott Browning Cape Girardeau County Abstract and Title Company in Cape Girardeau, Missouri was contacted in order to obtain information about discrepancies in local land records.

Additional information was obtained by contacting the Cape Girardeau County Historical Society, Cape Girardeau, Missouri, Dr. Arthur Mattingly of the Department of History, Southeast Missouri University in Cape Girardeau, Missouri and various individuals in Cape Girardeau and nearby towns. Individuals contacted included the Joe Glaus family of Nash, Missouri; Charles Cunningham, William Harmon, Mr. and Mrs. Reubon Meyr, Clyde Stubbs, John Eldridge and Robert Delezene of Chaffee, Missouri; Mr. Charles A. Juden, Sr., Mrs. C. A. Juden, Jr., Charles Leming, W. H. Houck, Harvey Houck and Mrs. G. P. Alt of Cape Girardeau, Missouri; and Walter Keisker and Shelby Brown of Jackson, Missouri. Further, Mr. William E. Busch, Project Manager, U.S. Army Corps of Engineers (St. Louis District), Lower Mississippi River Project Office in Cape Girardeau, Missouri, was consulted.

## Field Survey

### General Field Procedures

The areas surveyed were right-of-way corridors along existing and proposed ditches. All areas were traversed so that 100% of the visible ground surface

was examined. Road grades, ditch bank walls, and rodent holes within the right-of-ways were examined for evidence of subsurface cultural remains. As proposed, areas that were flooded were not surveyed. Further, portions of exposed profiles of recent borrow pits within the right-of-ways were inspected for the presence or absence of cultural material and to determine natural stratigraphy. The interior portions of borrow pits were not examined. Throughout the survey, subsurface shovel testing was done at intervals of 30 meters in an attempt to locate subsurface cultural deposits and to verify natural and/or redeposited soils. Because the areas within the right-of-ways had been modified by channelization and drainage projects (i.e., construction of levees, deposition of dredge spoil material) and widths of right-of-ways varied, the survey methodology for each right-of-way is described separately in the following sections. First, however, note that all measurements pertaining to right-of-way widths were measured perpendicular to levee or ditch centerline, whichever applies. Further, the number of individuals conducting each surveyed segment was dictated by:

- Adequate surface and subsurface coverage;
- logistics;
- width of right-of-way; and
- whether survey of one or both sides of a specific ditch or levee was required.

In general, where widths of right-of-way were less than 30.48 meters (100 feet), a single archeologist conducted the survey. In areas between 30.48 and 60.96 meters (100 and 200 feet) in width, two archeologists covered the necessary right-of-way. In one case (e.g., ditch 1), each side of the ditch was less than 30.48 meters (100 feet) in width. The right-of-way was surveyed by a single archeologist. When right-of-way widths exceeded 60.96 meters (200 feet) (e.g., junction of ditches 1 and 8), the right-of-way was surveyed in several sweeps by one or two archeologists to ensure adequate coverage.

When cultural remains were encountered during survey, the locations were flagged and plotted on U.S.G.S. maps for reference. Each site was then revisited to obtain additional data.

In general, surface visibility on cultural resources sites was highly varied due to: standing water, bean stubble, large clumps of bean stalk and dried mud, cut but uncollected crops (e.g., corn).

Controlled surface collections were made at each location. These were tape and compass collections based on a temporary datum established at each site.

Subsurface tests excavated at each of the sites included shovel tests (30 x 30 x 50 centimeters) and at least one 1 x 1 M<sup>2</sup> test unit. Where possible, the matrix from each test was passed through 1/4 inch steel mesh hardware cloth screen. However, the extensive deposits of Sharkey silty clays and clays negated effective use of screening in most instances. Thus, when efforts to screen failed, the matrix was hand and/or trowel sorted and sifted to ensure recovery of cultural items.

At each cultural resources site (including all archeological deposits and structural locations) subsurface shovel tests were placed at intervals of 5 or

10 meters. Areas excluded from shovel tests included existing levees and berms, borrow pits filled with water and fields where partially covered with standing water.

Test units were excavated from each archeological site found. Locations of each unit were based on field judgment. Excavation of 10 centimeter units was augmented by soil probes placed in the floor of most units.

Specific procedures at each site are described in detail in Appendix B. In the following sections, survey methodology for each right-of-way is reported.

#### Ditch 1

As originally contracted, a portion of ditch 1, 9816.69 meters (32,207 feet) in length, was indicated on the drafted blue-line drawings furnished by the contracting agency (Item No. R-48.87 A.C., Department of the Army, Memphis District, Corps of Engineers n.d.). An amended version (January 1983) of the drawing lengthened the area to be surveyed by extending the right-of-way southwesterly to include the bridge over ditch 1 on State Highway 77. Thus, a total of 10,122.41 meters (33,210 feet) (which included the amended 305.7 meters, 1003 feet) was intensively surveyed for cultural resources. This includes coverage on one or both sides of the ditch as indicated by the referenced drawings. The legal description of the surveyed area, as indicated in the Scope of Work, is described in Appendix A:C-5e and shown in Figure 4.

The right-of-way width along ditch 1 was varied, thus, survey was conducted by one or two individuals dependent on right-of-way width. From the junction of ditches 1 and 8, northward (survey stations 226+70 to 70+8358), the right-of-way width of ditch 1 dictated coverage by one individual. That is, rarely did the corridor width exceed 30.48 meters (100 feet). Where the width did exceed this margin, extra sweeps or passes were made by that individual to ensure adequate coverage.

From the junction of ditch 1 and 8, southward to the termination of the segment (Highway 77 bridge over ditch 1 - survey stations 226+70 to 332+10), the right-of-way varied on the east bank (southside). This width ranged between 48.76 to 64 meters (160 to 210 feet). In order to ensure adequate coverage, two archeologists conducted the survey.

On the west bank of this segment the right-of-way width varied from 24.38 to 32 meters (80 to 105 feet). The spoil bank in this segment was in some places approximately 1.5 meters (5 feet) above the natural ground surface and extended as much as 18.28 to 21.33 meters (60 to 70 feet) in width. Also, a 304.8 meter (1000 foot) length of the right-of-way contained mounded spoil approximately 4.52 to 6.07 meters (15 to 20 feet) above the surrounding natural ground surface. Further, the area is low lying and approximately 50-75% was under water at the time of the survey. Thus, a single archeologist surveyed this segment.

The right-of-way of both ditch banks were surveyed from northeast to southwest (north bank) and southwest to northeast (south bank). A zig-zag meandering pattern was walked with the interval spacing between crew (or sweeps) members approximately 24 to 32 meters (80 to 105 feet).

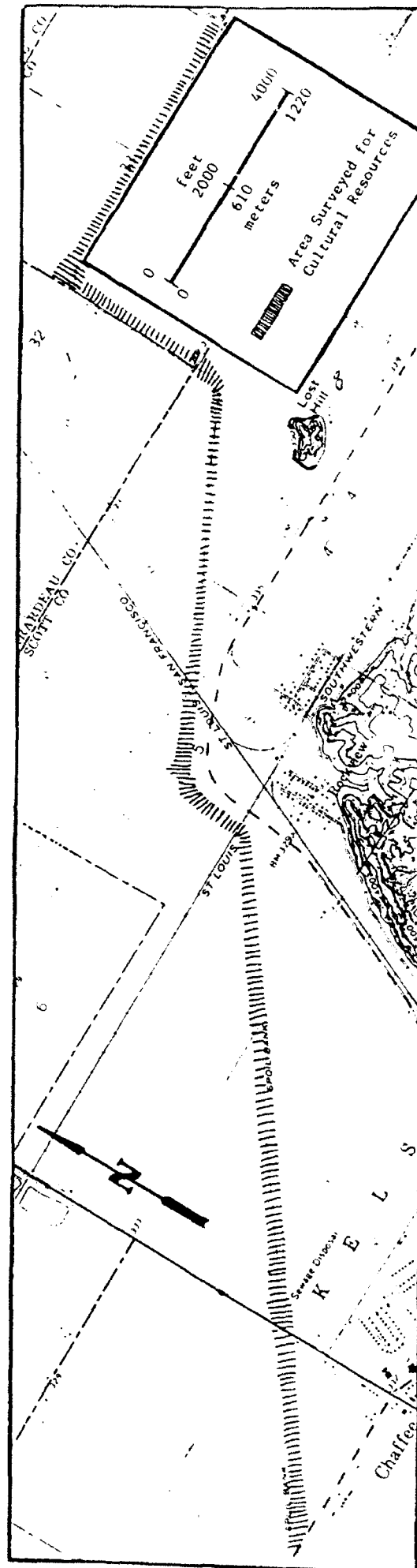


Figure 4. Ditch Number One, as surveyed for cultural resources. (Base map adapted from the U.S.G.S. Chaffee and Scott City, Missouri, 7.5' topographic quadrangles)

The surface of the right-of-way (with the exception of the mounded spoil on the west bank) was under cultivation. Surface visibility, affected by vegetative cover and standing water, ranged from 50 to 100% visible.

The intensive surface inspection was augmented by a series of subsurface shovel tests, each excavated at 30 meter intervals both on the natural ground surface and on the spoil areas. An attempt was made to pass the matrix from each shovel test through a 1/4 inch steel mesh screen, however, as the matrix, dominated by Sharkey clay, was not easily screened, it was hand sifted to ensure recovery of cultural remains. Periodic inspection of ditch wall profiles was conducted on both sides of the ditch.

#### Ditch 4

This ditch (Figure 5) is located along the eastern section line edges of sections 28 and 33, T30N, R13E. It begins at the base of the Headwater Diversion Channel (survey station 0+00) and extends southward a total distance of 2159.67 meters (7083.58 feet) to its junction with ditch 1 in the southeast corner of the northeast quarter in section 33, T30N, R13E (survey station 70+8358).

The right-of-way width of ditch 4 is best described in two (a northern and southern) segments. From the northern terminus located at the diversion channel levee south to the east-west one-half section line road, the right-of-way width on both sides of the ditch was 15.24 meters (50 feet). This northern segment is 521.20 meters (1710 feet) in length. The southern segment, from the east-west one-half section line road to the junctions of ditches 1 and 4, the right-of-way width ranges between 24.38 meters to 41.14 meters (80 to 135 feet) on the west side of the ditch. There was no right-of-way (or survey area) on the east side of the ditch. The southern segment is 1637.86 meters (5373.58 feet) in length.

On both northern and southern segments of ditch 4 right-of-way, spoil areas along the ditch margins are approximately 0.91 to 1.21 meters (3-4 feet) higher than the surrounding natural floodplain. These appear to be approximately 22.86 meters (75 feet) in width.

The northern segment was surveyed by a single archeologist who walked from south to north on the west bank of the ditch beginning at the east-west one-half section line road. A meandering zig-zag pattern was walked within the 50 foot wide right-of-way until the northern terminus at the diversion channel levee was reached. The surveyor then turned and proceeded south on the opposite side of the ditch surveying the right-of-way. Throughout the survey shovel tests were excavated at 30 meter intervals. An effort was made to screen the shovel test matrix but most had to be hand sorted.

Both right-of-ways on the northern segment were densely overgrown with weeds. None of the surface was visible.

The southern segment of ditch 4 was surveyed by a single archeologist. One traverse was walked except at the junction of ditch 4 and ditch 1. At this location the right-of-way width reached 41.14 meters (135 feet) for a distance of approximately 200 feet. Two contiguous traverses or sweeps were made in this area.

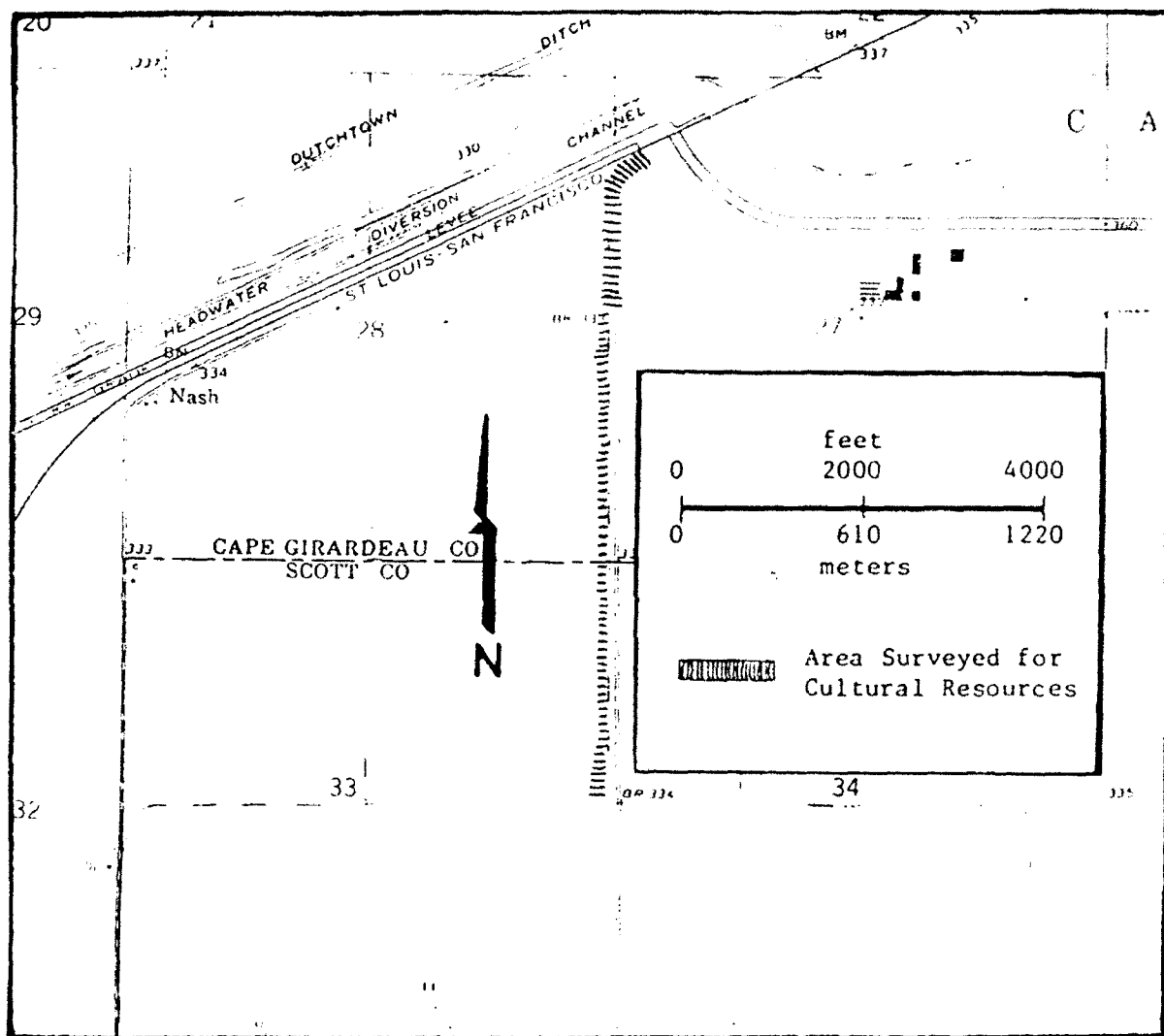


Figure 5. Ditch Number Four; as surveyed for cultural resources, March, 1983.  
 (Base map adapted from the U.S.C.S. Scott City, Missouri, 7.5' topographic quadrangle)



The entire southern segment had been disced. The surface was 95 to 100% visible.

#### Ditch 8

Ditch 8 (Figure 6) is 3420.16 meters (11,221 feet) in length. It begins at the Headwater Diversion Channel levee and extends southwest to its terminus at the junction with ditch 1.

On both sides of the ditch, right-of-way widths varied from 38.1 to 39.62 meters (125-130 feet). An error was made in interpreting the final drawings and Heartfield, Price and Greene, Inc. staff added 15.24 meters (50 feet) to the right-of-way width. On both sides of the ditch, spoil banks were approximately 1 to 1.5 meters (3 to 4 feet) above the natural ground surface. These were approximately 12.19 to 15.24 meters (40 to 50 feet) in width.

One archeologist surveyed each side of the ditch right-of-way with a single traverse. The archeologist walked from north to south in a zig-zag meandering pattern. The entire ditch 8 right-of-way had been recently disced over and the surface was 95-100% visible. The intensive surface inspection was augmented by a series of shovel tests 30 x 30 x 50 centimeters (12 x 12 x 20 in.) excavated at 30 meter (100 feet) intervals.

Note that the surface and subsurface investigations included both the natural surface as well as spoil areas. The ditch bank faces were also inspected at periodic intervals. Approximately one-half of the shovel tests excavated were screened, however, due to extensive clay content, the remaining tests were finger sieved.

#### Ditch A

The ditch A (Figure 7) right-of-way, which parallels the Headwater Diversion Channel Levee, is approximately 1270 meters (4165 feet) in length. The right-of-way width for ditch A was between 82.29 and 91.44 meters (270 and 300 feet). It extends east to west. Approximately 62.48 meters (205 feet) of the northern portion of the right-of-way width consists of existing levee, borrow pits and an abandoned (1963) railroad grade.

A single archeologist made two traverses along this right-of-way segment. The existing levee along the northern margin was excluded from survey but the right-of-way from the base of the levee to the southern margin was examined. The two traverses were approximately 30 meters (100 feet) in width. The archeologist walked in a zig-zag meandering pattern. Surface inspection was augmented by a series of shovel tests each 30 x 30 centimeters (12 in.) in plan and excavated at least 50 centimeters (16.4 in.) in depth. These tests were excavated at approximate 30 meter intervals. The matrix from each subsurface shovel test was passed through a 1/4 inch steel mesh screen.

The right-of-way surface consisted of abandoned railroad grade and borrow pits filled with water. There was no surface visibility in those areas.

The remainder of the right-of-way was fallow field covered with beans, stumps and standing water. Surfaces in this area were 50 to 75% visible.

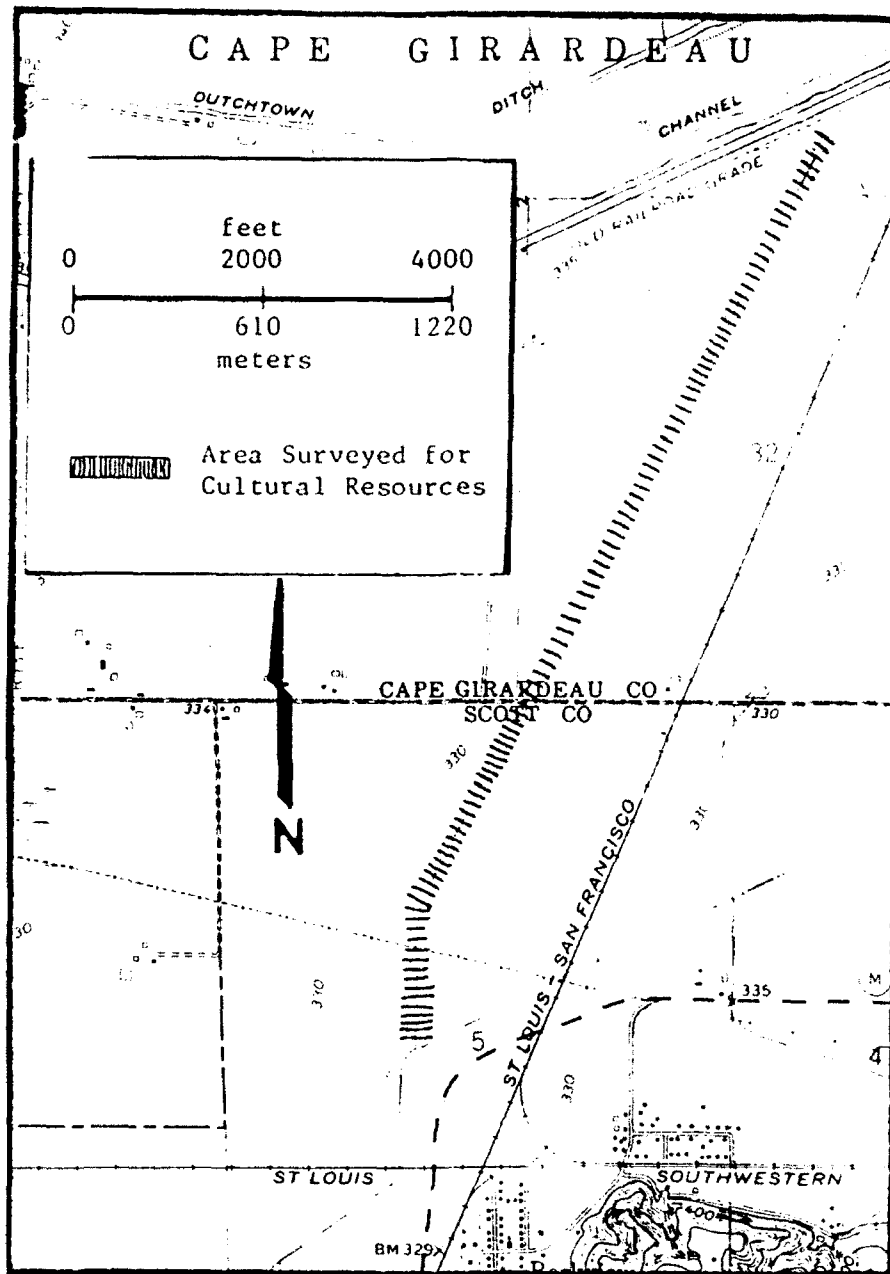


Figure 6. Ditch Number Eight; as surveyed for cultural resources, March, 1983. (Base map adapted from the U.S.G.S. Chaffee, Missouri, 7.5' topographic quadrangle)

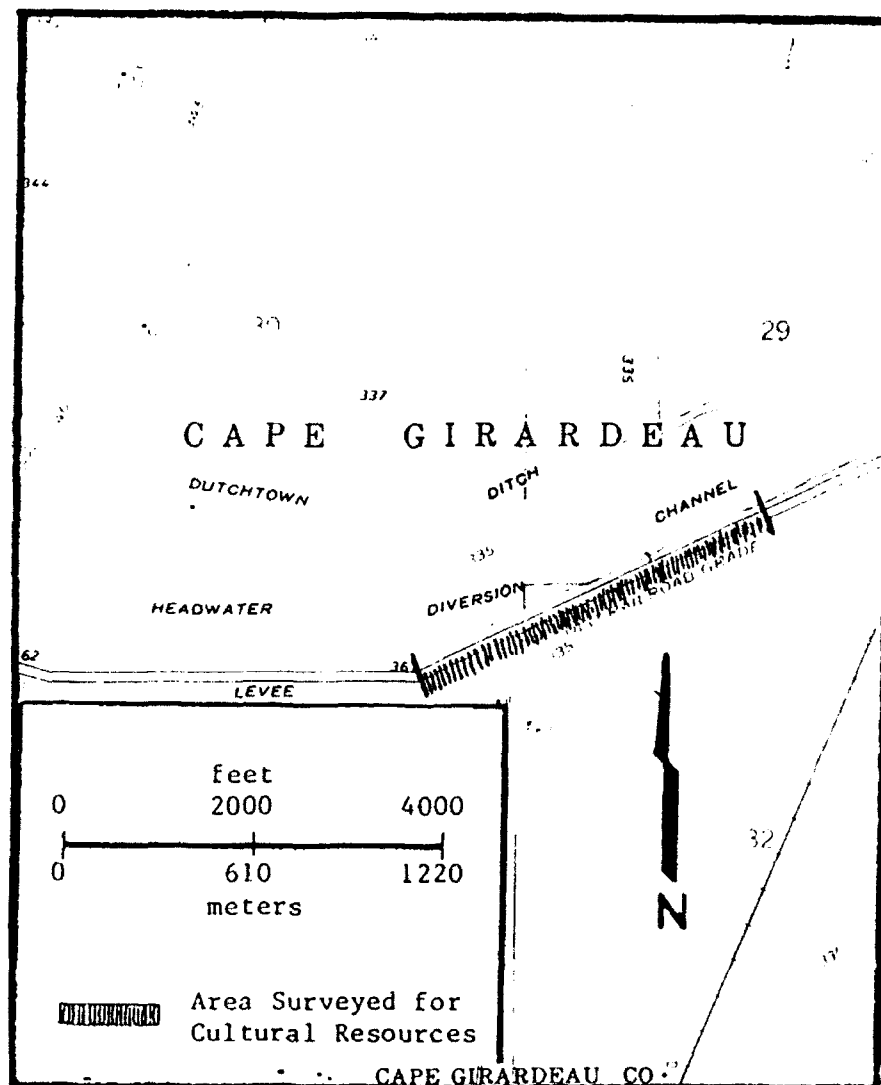


Figure 7. Ditch "A", as surveyed for cultural resources (Base map adapted from the U.S.G.S. Chaffee, Missouri, 7.5' topographic quadrangle)

#### Ditch B

The ditch B right-of-way (Figure 8) also parallels the Headwater Diversion Channel Levee. It is contiguous with ditch A. The right-of-way is approximately 624.84 meters (2028 feet) in length and varies in width between 54.86 and 76.20 meters (180-250 feet). Of this width, approximately 34.74 meters (114 feet) consists of existing levee, abandoned railroad grade and associated borrow ditch. Survey methodology applied was the same as that for ditch A. Surface conditions and visibility were also comparable.

#### Ditch C

The right-of-way for ditch C (Figure 9) parallels the Headwater Diversion Channel Levee. This right-of-way is contiguous with ditch B. It is approximately 1824.83 meters (5987 feet) in length and the width varies from 7.62 to 95.4 meters (25 to 313 feet). Of this width, existing levee, borrow ditches/pits and railroad grade comprise approximately 62.48 meters (205 feet). Ditch C was also surveyed in the same manner as ditches A and B. Thus, the methodology will not be repeated here. Surface visibility along the levee and railroad grade was negligible. The remainder of the right-of-way consists of fallow field with 50 to 75% of the surface visible and a hardwood forest along 700 feet in the central portion of the right-of-way with less than 50% of the surface visible.

#### Ditch D

The right-of-way (Figure 10) of ditch D parallels the Headwater Diversion Channel Levee. It is contiguous with ditch C. This segment is approximately 3225.69 meters (10,583 feet) in length and between 73.15 to 152.40 meters (240-500 feet) in width. This entire right-of-way lies on existing levee material; that is, no natural surfaces are exposed. To confirm this observation and prior to the survey, the Little River Drainage District Engineer, Larry Dowdy, was consulted by the Project Director, Nancy Clendenen. She was informed that the right-of-way to be used was indeed the area between the levee centerline and the paralleling fence at the base of the levee.

The eastern segment of the right-of-way, 2341.87 meters (7683 feet) in length, was surveyed by one archeologist. He walked in a meandering zig-zag, pattern on the lower slopes of the levee to the fenceline that marked the right-of-way boundary. The entire area was covered with grass so that only eroded areas afforded surface visibility (less than 20%). Surface inspection was conducted at all exposed areas encountered. Further, subsurface tests were conducted at approximate 30 meter intervals. As this area is obviously redeposited fill material, the tests were conducted to verify the presence of highly disturbed soils (extensively mottled) and determine the presence or absence of redeposited cultural remains. All shovel test matrix was finger sieved.

The western segment of the ditch D right-of-way, 883.92 meters (2900 feet) in length, was surveyed by two archeologists walking parallel paths approximately 25 meters apart. Four traverses were made by each archeologist so that the entire corridor width was examined. Shovel tests were dug at 30 meter intervals and the matrix was hand sieved. The surface visibility on this segment was consistent with the eastern segment.

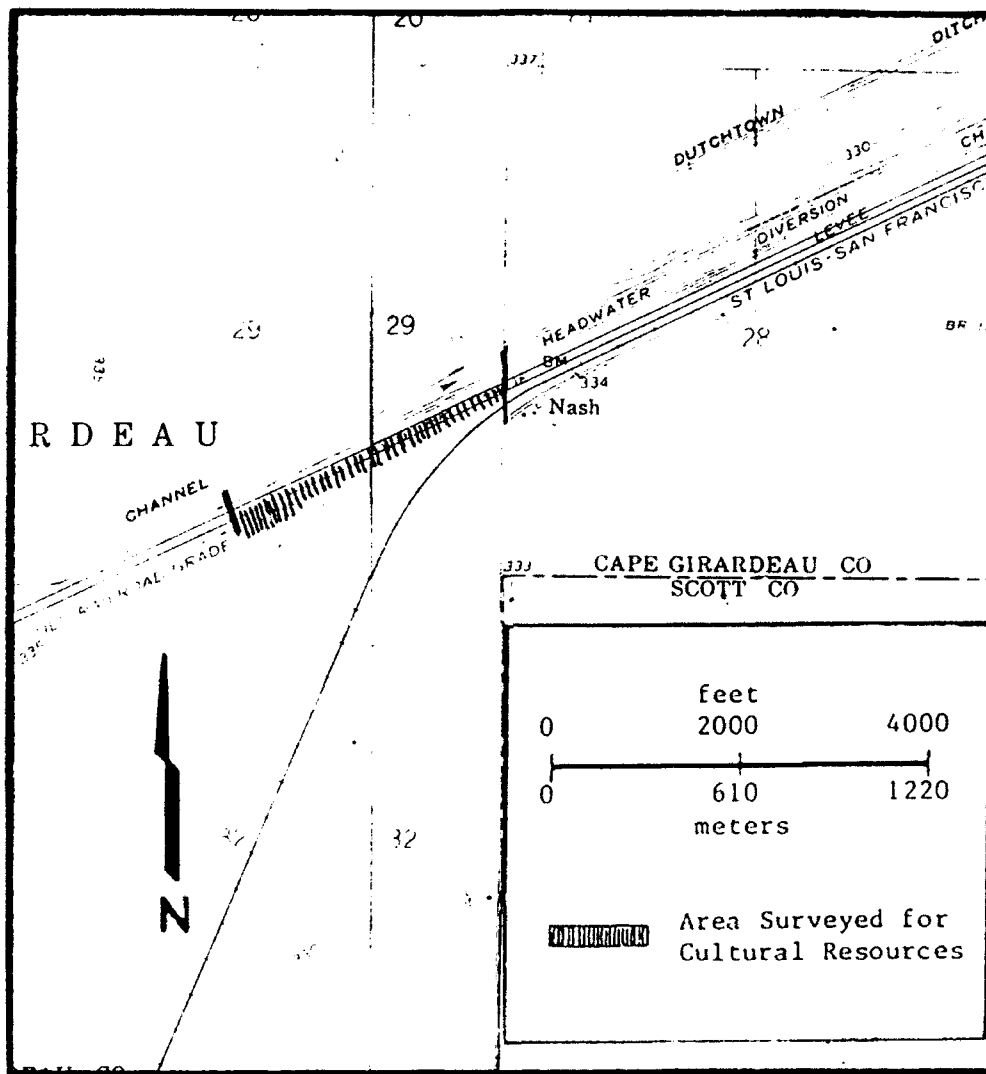


Figure 8. Ditch "B"; as surveyed for cultural resources (Base map adapted from the U.S.G.S. Chaffee and Scott City, Missouri, 7.5' topographic quadrangles)

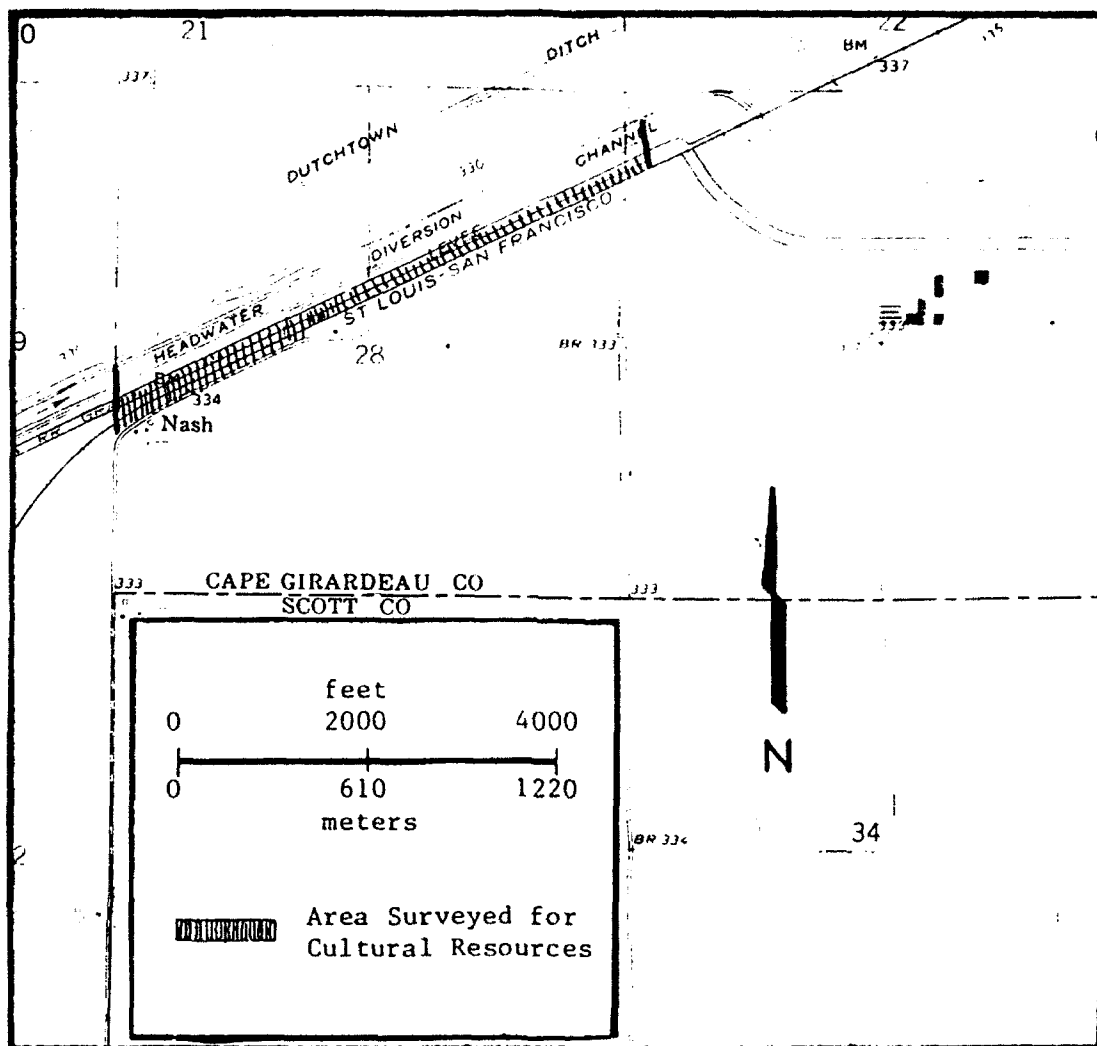


Figure 9. Ditch "C"; as surveyed for cultural resources (Base map adapted from the U.S.G.S. 7.5', Scott City, Missouri, topographic quadrangle)

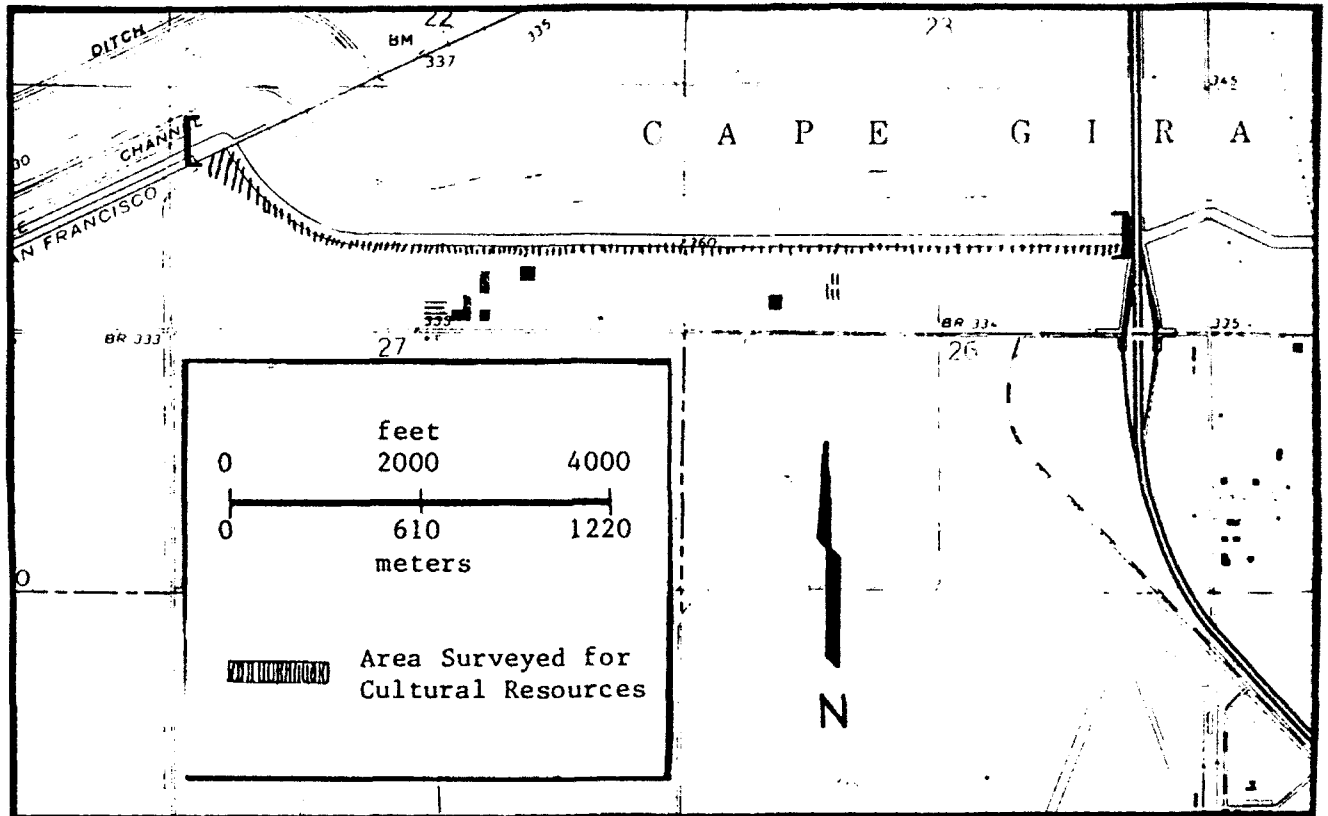


Figure 10. Ditch "D"; as surveyed for cultural resources (Base map adapted from the U.S.G.S. Scott City, Missouri, 7.5' topographic quadrangle)

## RESULTS

### Literature Search

There were no sites listed on or recently nominated for inclusion on the National Register of Historic Places within the areas to be affected by the proposed Nash Well Relief Project. Although previously recorded sites have been documented nearby, there have been no archeological sites documented within the areas to be impacted by the Nash Well Relief Project. The right-of-ways for ditches A, B, C and D fall within the area surveyed for cultural resources by Michael McNerney in 1980. His report (McNerney and White 1982a) indicates that no sites were documented within these current survey areas.

The county courthouse records in Cape Girardeau County (Jackson, Missouri) and Scott County (Benton, Missouri), as well as those records reviewed at the State Land Office, indicate land settlement in the general project as early as the late 18th century, when Cape Girardeau was founded and laid out in 1793 (Houck 1908:Vol. 1, p. 170). Further, the area in the vicinity of Benton, Missouri, was being settled as early as 1796-1797 as indicated by the presence of Captain Charles Friend (Anonymous 1900:1), an early resident who migrated to the area from Virginia.

Early land records (U.S. survey plats) indicate that the study area was being surveyed by Samuel P. Brown and others as early as 1817 (Office of the Surveyor General, M. Lewis Clark for Illinois and Missouri 1852, 1837 and 1842, respectively; survey plat maps for T30N, R13E, T29N, R13E and T29N, R12E, 5th principal meridian; on file Missouri State Land Office, Rolla, Missouri). During the time of these initial United States surveys the entire study area was generally described as "low, level and swampy" (U.S. Survey Plats). Thus historic settlement in the actual areas surveyed for the Nash Well Relief Project probably did not flourish until the late 19th and early 20th centuries. It was during this period that the vast bottomland hardwood swamps were being deforested for wood resources. As late as 1925, the area was still low, level and relatively swampy and was, as such, exploited for its extensive flora and fauna (e.g., trees, wildlife and fishing) resources (Personal Communication:William Harmon, March, 1983).

Very little private ownership was present in the study area at the time of the United States surveys (1817-1845). However, adjacent lands to the north indicate that patents were obtained extensively, perhaps because these northern areas were slightly higher in elevation, thus, much more conducive to settlement. Land patent owners adjacent to or partially within the study area at the time of these original surveys include: Solomon Thorn who owned 600 arpants (currently the northeast quarter of section 28, T30N, R13E) and Bartholomew Cousin who owned 1083 arpants (which included all of present-day section 30, T30N, R13E) (survey plat map T30N, R13E, 5th principal meridian).

Early U.S.G.S. topographic maps (1934 and 1939, Morley, Missouri 15') were inspected prior to the survey. These maps indicated the presence of several structures, most notably in the vicinity of the junction of ditch No. 1 and State Highway 77 (north of Chaffee, Missouri). A 1901 map (anonymous) of Cape Girardeau County indicated the presence of a railroad spur line and "Beechwall", a small farm, possibly built by Louis Houck west of Nash, Missouri.



The Mississippi River Commission maps (1975) were reviewed, however, the area depicted does not apply to the Nash Well Relief project area.

Sites previously recorded in the general vicinity of the proposed project area are listed below in Table 1. The list provides the site number, county and approximate distance and direction from the project survey areas. Recall that none of the previously recorded sites is situated within right-of-ways examined during this survey.

TABLE 1  
PREVIOUSLY RECORDED SITES

SITE NUMBER	COUNTY	APPROXIMATE DISTANCE FROM PROJECT AREA
23CG36	Cape Girardeau	3500' south ditch "D"
23CG38	Cape Girardeau	500' south ditch "C"
23CG51	Cape Girardeau	1700' north ditch "A"
23CG2	Cape Girardeau	5000' northwest ditch "A"
23CG28	Cape Girardeau	5000' west-northwest ditch "A"
23CG52	Cape Girardeau	400' south ditch "A"
23CG53	Cape Girardeau	2500' west-southwest ditch "A"
23ST184	Scott	5000' west-northwest ditch "A"

#### Field Survey

A total of 14 cultural resources were recorded during survey. These include six archeological sites and eight architectural locations (Table 2). Each is described in Appendix B. The archeological sites include two sites with prehistoric components (23CG115 and 23CG116) and four sites with historic components (23CG114, 23ST201, 23ST202 and NLU-83-62). The architectural sites are NLU-83-54, NLU-83-57, NLU-83-58, NLU-83-63, NLU-83-64, NLU-83-65, NLU-83-66 and NLU-83-67.

TABLE 2  
TABLE OF EQUIVALENT SITE NUMBERS

MISSOURI STATE NUMBERS	NLU NUMBERS
23CG114	NLU-83-55
23CG115	NLU-83-56
23CG116	NLU-83-59
23ST201	NLU-83-60
23ST202	NLU-83-61
No state number assigned	NLU-83-54
No state number assigned	NLU-83-57
No state number assigned	NLU-83-58
No state number assigned	NLU-83-62
No state number assigned	NLU-83-63
No state number assigned	NLU-83-64
No state number assigned	NLU-83-65
No state number assigned	NLU-83-66
No state number assigned	NLU-83-67

For all sites recorded (archeological and architectural), physiographic data including soils, topography, elevation and associated Corps of Engineers project features is provided in Table 3. In the following section, each archeological site and architectural location is considered. Data from Appendix B is utilized and the alluvial history and/or soils of each site, based on information from the chapter "Environmental Setting," is discussed.

### Archeological Sites

#### Prehistoric Components

Site 23CG115. This site covers a surface area of approximately 20 x 40 meters. There are no definable features or midden. It is primarily a surface manifestation although mixed prehistoric and historic debris were found to a depth of 27 centimeters below the surface. Mixing is due to modern development on the site such as railroad construction and abandonment (removal of track); levee construction and channelization; deforestation (since 1975); and finally, agricultural activities.

Site size, sparsity of materials and lack of midden suggest casual, perhaps short term use. This indicates that the site may have been used as prehistoric people exploited backwater resources in an area unsuitable for long term habitation.

The diagnostic artifacts recovered from site 23CG115 suggest two intervals for site occupation or utilization. The Archaic projectile points, Stone Square Stemmed and Table Rock Stemmed, suggest a temporal interval between 5000 - 1000 BC and 3000 to 1000 BC (Chapman 1975:257-258). A sherd that appears to be Korando Cord Marked (Chapman 1980:284-285) suggests a later Post-Archaic time frame. This may date during the Woodland times, circa AD 900 or during the early Mississippi interval (to AD 1200).

Although the site is situated within or adjacent to the Stage C<sub>2</sub> Mississippi River Channel (Fisk 1944:Figure 45) it seems doubtful that the site is situated on C<sub>2</sub> deposits. This is because Fisk indicates that C<sub>2</sub> materials were swept away or buried by subsequent alluvial fan deposits that are associated with the G, H, I and J stages of the Mississippi River. Recall that the C<sub>2</sub> stage dates 7000 to 6000 BP (5000 - 4000 BC) while the G, H, I and J stages date between 5300 and 4500 BP (3300 - 2500 BC). It is possible that the G, H, I and J stage alluvial fan remnants have been buried by later Mississippi River deposits. These would be from the #1 stage of the Teche deltaic system and appear to date between 4800 - 400 BP (2800 - 200 BC). These, too, may have been buried by more recent alluvium.

Comparison of the probable dates for projectile point manufacture and the alluvial history of the site suggests the following speculations.

- 1) Site 23CG115 is located on post-C<sub>2</sub> deposits. These may be:
  - a) G, H, I and J stage;
  - b) #1 stage of the Teche;
  - c) later alluvium associated with modern sediments.

TABLE 3  
PHYSIOGRAPHY OF RECORDED CULTURAL PROPERTIES,  
NASH WELL RELIEF PROJECT,  
CAPE GIRARDEAU AND SCOTT COUNTIES, MISSOURI

SITE #	SOILS	TOPOGRAPHY	ELEVA- TION	ASSOCIATED CORPS OF ENGINEERS PROJECT FEATURES
23CG114	Falaya silt loam; Orthents- Water complex	Floodplain	335'	Headwater Diversion Channel, 600' to north
23CG115	Falaya silt loam	Floodplain	335'	Headwater Diversion Channel, 600' to north
23CG116	Orthents-Water Complex Mhoon silt loam	Floodplain and spoil bank from ditch 8	333'+ —	Ditch 8 is 30' to west
23ST201	Orthents-Water Complex Sharkey silty clay	Spoil bank from ditch 1 and floodplain	335'+ —	Ditch 1 is immediately to south
23ST202	Orthents-Water Complex Sharkey silty clay	Spoil bank from ditch 1 and floodplain	335'+ —	Ditch 1 is immediately to north
NLU-83-54	Orthents-Water Complex	Levee berm	335-340'	Headwater Diversion Channel, 300' to north
NLU-83-57	Orthents-Water Complex	Levee berm	340'+ —	Headwater Diversion Channel, 500' to north
NLU-83-58	Orthents-Water Complex Sharkey silty clay	Floodplain spoil bank from ditch 4	333'+ —	Overlooks and crosses ditch 4, east/west
NLU-83-62	Orthents-Water Complex	Mounded/ wooded spoil bank from ditch 1	345'+ —	Ditch 1 is immediately to south
NLU-83-63	Orthents-Water Complex Sharkey silty clay	Floodplain roadbed spoil bank ditch 1	332'	Crosses ditch 1 east/west
NLU-83-64	Orthents-Water Complex	Floodplain spoil banks	333'	Crosses ditch 1 north/south
NLU-83-65	Orthents-Water Complex	Floodplain spoil banks	332'	Crosses ditch 8 east/west
NLU-83-66	Orthents-Water Complex Sharkey silty clay	Floodplain spoil banks	333'	Ditch 1 is immediately to the north
NLU-83-67	Orthents-Water Complex Sharkey silty clay	Floodplain spoil banks	333'	Ditch 1 is immediately to the south

2) Although the earliest date for the site may be from the beginning of the Middle Archaic, the lack of C<sub>2</sub> deposits suggests a later date

3) The two dart points may be contemporaneous. If so, they most likely date after 3000 BC or not before the Late Archaic. If these points are Late Archaic, they may be associated with late G, H, I and J stage deposits; #1 stage of the Teche deposits; or even post-Mississippi stage deposits of more modern times.

4) Because most of the sample is lithic (only one sherd was recovered) it is speculated that most use of the site was during the Late Archaic. If the sherd is early Woodland it is conceivable that all materials are contemporaneous and occupation of the site occurred during Late Archaic-Early Woodland times. Because the site is a surface manifestation, contemporaneity should be seriously considered; that is, there is no alluvial depth to the site.

5) Finally, it seems likely that the Falaya silt loam on the site is modern (post-Mississippi stage) in derivation.

Site 23CG116. Site 23CG116 consists of redeposited prehistoric artifacts that were apparently dug during ditch construction and scattered as spoil was spread by agricultural activities.

The cultural material is associated with modern Orthents-Water Complex soils. When found, the prehistoric debris covered an area of 17 x 25 meters. It is assumed that the entire site was excavated because no cultural remains could be found in the ditch margins or on the surrounding Mhoon silt loam.

The original site size can not be estimated but the sparse amount of debris suggest a small site. This may be indicative of casual (or seasonal) use of the site by prehistoric peoples who were exploiting backwater resources. The area may have been unsuitable for long term habitation.

The only diagnostic artifacts recovered from site 23CG116 are three grog tempered sherds. These are tentatively dated within the Post-Archaic, Woodland to Mississippian periods which span 1000 BC to AD 1450. The lack of identifiable Mississippian remains suggest a Woodland association: 1000 BC to AD 900.

The alluvial history of the site location does not contradict these tentative dates for prehistoric occupation of the site. The Woodland Period post-dates the Mississippi stage deposits described by Fisk and Saucier. It seems likely then, that Mhoon silt loam is developed from modern (post-Mississippi stage) alluvial deposits. It also is tenable to conclude that site 23CG116 was associated with the Mhoon soil.

#### Historic Components

Site 23CG114. Site 23CG114 has two historic components. The first is the remains of Beechwall, a farm complex that dates between 1880 and 1916. The structures were moved from the site and all that remains is a surface scatter of debris. The scatter covers an area approximately 60 x 275 meters (200 x 900 feet). The size of the scatter is the result of continuous disturbance on the site; particularly plowing.

The second component is the remains of a railroad spur line built on the site by 1901. These remains consist of ballast material. These remains are confined to an area approximately 5 meters (16 feet) wide and 33 meters (108 feet) in length. The spur line has been buried by colluvium from an adjacent abandoned railroad bed (Hoxie Sub/Nash Lead).

Soils on the site consist of naturally deposited Falaya silt loam (alluvial) and secondary Orthents-Water Complex soils. The historic remains from the farm complex lie only on Falaya silt loam suggesting that they pre-date and/or were separated from the levee and railroad bed (Hoxie Sub/Nash Lead). Obviously, the railroad bed material is secondarily deposited.

None of the shovel tests made on the site or in the immediate vicinity indicate a potential for undetected prehistoric remains underlying the Orthents-Water Complex soils.

Site 23ST201. This site is a surface scatter of historic household debris that covers an approximate area of 25 x 40 meters (82 x 131 feet/0.24 acres). These materials are on and adjacent to a spoil bank. There are no features or evidence of structures. Materials from the site date to the first quarter of the 20th century.

Soils on the site are Orthents-Water Complex and Sharkey silty clays. The association of these materials with identifiable spoil deposits indicates that the remains are trash dredged from the adjacent ditch, redeposited as spoil and spread onto the surrounding Sharkey soils. This is further supported by a local informant who reports the local use of ditches for trash disposal (Personal Communication: Reubon Meyr, March, 1983).

Site 23ST202. This is the location of two structures, one of which was on the site before 1934 and the other after 1939. Both remained until about 1978. Today, all that remains is a scatter of historic debris that can generally be dated from approximately the early 1900's until at least post-1951. Based on temporal comparisons, it is assumed that these artifacts are associated with the historic structures. The artifacts are scattered over an area of approximately 40 meters x 100 meters (131 x 328 feet/0.98 acres). All are confined to the surface and are situated on spoil bank and natural flood-plain deposits. Soils are Orthents-Water Complex soils and Sharkey clay.

Because the site has been plowed and materials are situated on both natural and secondary deposits, it is probable that no materials are in situ. There is no evidence of subsurface components.

Site NLU-83-62. This is a modern site that is being used for trash disposal. It is situated on borrow pit spoil (Orthents-Water Complex soils) and is situated in a flooded, wooded area. The dump covers approximately 30.48 to 60.96 meter area (100 x 200 feet/0.46 acres). Shovel tests on the site and in the immediate area did not reveal evidence of (or potential for) other earlier cultural remains.

#### Architectural Sites

The eight historic architectural components include: a recently constructed (post-1970) mobile home (NLU-83-54); a recently constructed (circa

1940) collapsed cattle feeder or shed (NLU-83-57); one recently constructed (post-1978) mechanics garage and associated junk yard (NLU-83-67); the (post-1950) abandoned Chaffee, Missouri, sewage treatment plant (NLU-83-66); and four historic (post-1940) bridges (NLU-83-58, NLU-83-63, NLU-83-64 and NLU-83-65). All bridges are of local construction and built with planks, concrete and other locally available materials.

#### SETTLEMENT MODEL

Table 4 diagrammatically compares the Mississippi River stages (as defined by Fisk and Saucier) with the human culture sequence in the study area. These relationships provide information for useful interpretive observation and speculation.

Recall that there are no prominent physiographic features extending above the flat land surface in the study area. Thus, no clearly definable relict land forms have been identified or are expected.

#### Prehistoric Observations and Hypotheses

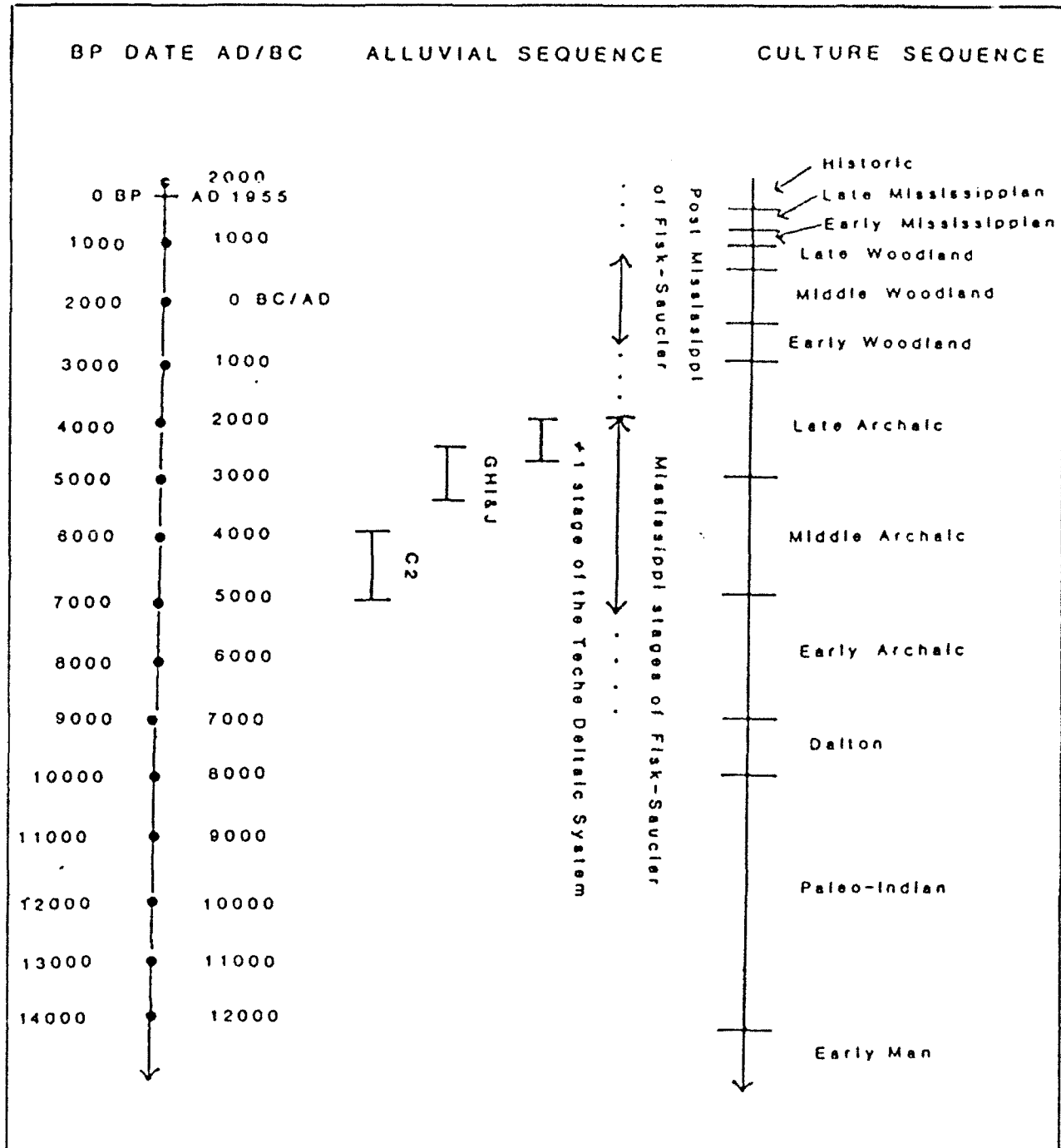
No cultural material pre-dating the C<sub>2</sub> stage (7000 BP/5000 BC) is anticipated. Therefore, no Early Man (12,000+ BC), no Paleo-Indian (12,000-8000 BC), no Dalton (8000-7000 BC) and no Early Archaic (7000-5000 BC) cultural remains are likely to be found on or near the surface in the study area.

Because the C<sub>2</sub> deposits (7000 BP, 5000 BC-6000 BP/4000 BC) have most likely been swept away or deeply buried, no cultural remains are anticipated to be found on or near the surface of the study area that predate 4000 BC. Therefore, Archaic remains if found, are not expected to predate the Middle Archaic. In fact, Middle Archaic remains should not predate the later segment (post-4000 BC) of that interval.

Due to the lack of surface features and the apparent continued alluviation throughout the history of the study area, it appears unlikely that either G, H, I and J stage or #1 stage Teche deposits remain on the surface. However, these might be present as low lying alluvial features or remnants (such as relict levee deposits). Cultural material associated with G, H, I and J stage materials should not predate 3300 BC (Middle/Late Archaic). Cultural remains associated with #1 stage Teche deposits should not predate 2000 BC or (mid) Late Archaic times.

However, it seems probable that prehistoric cultural remains recovered from or near the surface of the study area will be associated with recent (post-Mississippi stage) alluvium (Fisk 1944). Again, this is based on the low lying nature and inferred continued alluviation in the study area. This observation is supported by the location of site 23CG115 recorded during this survey and the location of a similar site, 23CG53, in the same area by McNerney and White (1962a). That is, both of these prehistoric sites may well date within the transitional Late Archaic/ Woodland time frame. This is much later than the Mississippi River stage deposits (Fisk 1944).

TABLE 4  
ALLUVIAL AND CULTURAL SEQUENCE



Therefore, it is hypothesized that the surfaces on the study area do not predate 2000 BC and that the naturally developed soils are developed from modern sediments. It is further hypothesized that all remains will be associated with or post-date the transitional Late Archaic/Early Woodland.

In terms of land use in the study area, it is hypothesized that pre-historic peoples exploited lowland (backwater) resources. They used the area on a temporary (possibly) seasonal basis and established no permanent or large settlements in the region. Resources exploited would have included plant and faunal species that have survived into modern times.

#### Historic Observations and Hypotheses

Although historic Indian groups may have exploited the natural resources of the study area, it is doubtful that the area was selected for settlement. No evidence of these peoples is expected in the study area.

During the early Euro-American sequence, the study area appears to have been abandoned. No evidence of any but casual (hunting and trapping) use is hypothesized. It is hypothesized that these remains will be scattered and not associated with discrete datable historic components.

Evidence of early 20th century lumbering might be found during survey activities. However, no permanent camps or other settlements were established during this time frame and no useful historic remains are anticipated to be found.

Because historic records and archeological evidence has located the only known late 19th/early 20th century farm, other early historic features associated with agriculture are not expected to be found.

#### Survey Comment

Finally, due to intense (but not settlement specific) activity such as timbering, farming, railroad construction, dredging and spoil spreading, no in situ materials of prehistoric or historic times are likely to be isolated on or near the surface in the study area. Further, it should be noted that although not in situ, cultural remains are likely to be frequent in the secondarily deposited Orthents-Water Complex soils associated with ditches, borrow pits and levee construction. These remains might expand the inventory of known prehistoric and historic items from the region.

### SIGNIFICANCE

In the following sections each of the cultural resources identified during the survey have been assessed for significance (eligibility for inclusion on the National Register of Historic Places).

#### Potentially Significant Sites

23CG115. Only one site is potentially eligible for inclusion on the National Register of Historic Places. This is site 23CG115. It may meet the



criteria of significance because it may be likely to yield information important in prehistory. The site which may date from the Middle Archaic is most likely associated with transitional Late Archaic/Woodland time frame (circa 1000 to 500 BC).

The site might yield valuable data about the prehistory of the area. However, there are five limiting factors:

- 1) none of the remains appear to be in situ;
- 2) most of the remains appear to be on the surface;
- 3) there are no floral or faunal debris;
- 4) there are no features or definable midden; and
- 5) the site has been damaged by collectors so that artifact frequencies on the site are biased.

Therefore, the only valuable or useful data believed to remain on the site are lithic and pottery artifacts. These materials (although biased in frequency) might yield useful information on: 1) time frame of the site, 2) activities performed on the site, 3) sources of raw (lithic) materials, and 4) artifact typology in association with lithic debris (biased).

Based on the artifacts and other data collected from the site, a determination of significance can not be made at this time. Thus, it is recommended that if a determination of eligibility is sought, an extensive surface collection be made. This should be augmented by additional 1 x 2 meter or larger excavation units. The objective for excavating these units would be to further confirm mixing in the subsurface profile.

#### Nonsignificant Sites

Of the 13 resources not believed significant, one is a prehistoric site and four are historic sites. The remainder are historic architectural features.

23CG116. The prehistoric site 23CG116 does not meet the criteria for inclusion on the National Register of Historic Places. The site may have been completely collected. Further, because it is in/on redeposited materials, it lacks integrity of location. Finally, because none of the materials recovered are diagnostic, the site is not likely to yield information useful to interpreting the prehistory of the area.

23CG114. It is believed that adequate historical data (from archival research, personal interview and artifact collection) has been gathered from both components at this site. The historic remains meet the age criterion for inclusion on the National Register of Historic Places. However, none of the materials retain integrity of location and none of the artifacts remaining on the site are likely to yield additional information useful for interpreting the history of the area. Although Beechwall was an early farmstead, the individuals associated are not of significance. Thus, 23CG114, is not considered eligible for inclusion on the National Register of Historic Places.

23ST201. If the refuse recovered from site 23ST201 dates to the early 20th century, the site does meet the age criterion for inclusion on the National Register of Historic Places. However, none of the materials retain

integrity of location and none are important for interpreting the history of the area. Thus, the remains at 23ST201 are not considered significant.

23ST202. Although this site may meet the age criterion for significance there are no useful remains on the site. The structures have been removed and the historic debris is scattered. Integrity of location and data useful for interpreting the history of the area are not evident. Therefore, site 23ST202 is not considered eligible for inclusion on the National Register of Historic Places.

NLU-83-62. This modern trash dump by virtue of the origin of the deposits (post-1970), is not considered significant. Because it does not meet the necessary age criterion, contains no subsurface deposits and is not unique to the area, it is not considered likely to yield useful data. Thus, it is not eligible for inclusion on the National Register of Historic Places.

NLU-83-54. This modern mobile home exhibits no significance in building style, construction technique or workmanship. It is recent in origin (post-1970), therefore, does not meet the age criterion for inclusion on the National Register of Historic Places. Further, its location on redeposited levee material indicates that the probability of finding significant archeological deposits is very low. Additional investigations are not likely to yield significant data regarding the trailer or earlier cultural deposits.

NLU-83-57. This fallen (collapsed) structure appears to date to the 1940's or later. It contains no significance in terms of architectural design or construction technique. Further, there are no subsurface materials associated with the structure. Because the structure meets none of the criteria (e.g., lack of integrity, lack of sufficient age and the lack of architectural or cultural significance) for inclusion on the National Register of Historic Places, it is not considered significant.

NLU-83-58. This privately constructed and maintained bridge is believed less than 30 years old. It exhibits no special significance of construction style, technique or workmanship. Because the structure meets none of the criteria for inclusion on the National Register of Historic Places, it is not considered significant. Further, the trash nearby is not significant due to its recent deposition.

NLU-83-63. This bridge is not considered significant because it is not of sufficient antiquity, exhibits no special significance in style, workmanship or materials and is not unique to the area. Therefore, it meets none of the criteria necessary for inclusion on the National Register of Historic Places.

NLU-83-64. This modern (post-1970) bridge exhibits no significance in architectural style, workmanship, materials or antiquity. It meets none of the criteria necessary for inclusion on the National Register of Historic Places, thus, is not considered significant.

NLU-83-65. This modern bridge (post-1960) exhibits no significance in architectural style, materials or workmanship. Further, it is not greater than 50 years in age and is not unique to the area. It is not considered significant as it meets none of the necessary criteria for inclusion on the National Register of Historic Places.

NLU-83-66. This sewage plant was constructed in the early 1950's and abandoned in the late 1950's (Personal Communication: Louis Delezene, March, 1983). It exhibits no significance in architectural style, workmanship or materials and is not of sufficient antiquity. Even though it is unique to the immediate area, it is not believed to be culturally or architecturally significant. Because it meets none of the criteria necessary for inclusion on the National Register of Historic Places, it is not considered significant.

NLU-83-67. Steve's Garage is not considered a significant cultural resource due to its recent (post-1978) origin and lack of significance in architectural style, workmanship or materials. It is not greater than 50 years in age and is not unique to the area. No subsurface materials or features were encountered during the investigations. Because the site does not meet any of the criteria for inclusion on the National Register of Historic Places, it is not believed culturally or architecturally significant.

#### IMPACTS

Impacts will vary on the fourteen recorded cultural resources from none to 100% destruction of the site (Table 5).

Of the fourteen sites, 10 (23CG114, 23CG115, 23CG116, NLU-83-54, NLU-83-63, NU-83-64, NLU-83-65, NLU-83-66, NLU-83-67) will not suffer any impact under the presently proposed work.

The remaining four sites will be impacted as follows:

##### 23ST201

The historic scatter will be totally impacted by the widening of ditch 1. Approximately 15 feet (4.57 meters) of the site's width will be destroyed by excavation. The remainder will be buried under 3 to 10 feet (.91 x 3 meters) of spoil from the excavation (Memphis District, Corps of Engineers, Item No. R-48.87 A.C., Nash, Missouri; Relief Well Ditches; Serial 21876 file 101/356(6.1); April 1983).

##### NLU-83-57

The impact on this collapsed shed is uncertain. Although this shed is within the right-of-way limits the excavation and spoil spreading will cease before it reaches the site. However, the site may be impacted by the passage of excavation machinery (Memphis District, Corps of Engineers, Item No. R-48.87 A.C., Nash, Missouri; Relief Well Ditches; Serial 21876 file 101/356(3.1); April 1983).

##### NLU-83-58

The bridge will be totally removed and replaced with a culvert. Thus, the site will be 100% impacted (Memphis District, Corps of Engineers, Item No. R-48.87 A.C., Nash, Missouri; Relief Well Ditches; Serial 21876 file 101/356(4.1); April 1983).

This trash dump will have approximately 15 feet (4.57 meters) of its width removed during widening of ditch 1. However, no spoil is to be placed in the wooded area which it occupies (Memphis District, Corps of Engineers, Item No. R-48.87 A.C., Nash, Missouri; Relief Well Ditches; Serial 21876 file 101/356(6.1); April 1983).

TABLE 5  
PROPOSED WORK AND IMPACTS AT RECORDED CULTURAL RESOURCES

SITE NO.	LOCATION	NATURE OF WORK	IMPACT ON SITE
23CG114	Ditch A	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
23CG115	Ditch A	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
23CG116	Ditch 8	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
23ST201	Ditch 1	The ditch will be widened on the right top bank by about 15'. Spoil will be placed on top of existing ground surface to a depth of 3-10'.	The site will be 100% impacted
23ST202	Ditch 1	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
NLU-83-54	Ditch A	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
NLU-83-57	Ditch D	The site is out of the actual excavation areas but is still in the right-of-way	Probable impact by passage of excavation machinery
NLU-83-58	Ditch 4	The ditch will be deepened by about 8' and widened by approximately 35' at the top. Excavation soil is to be put on the right top bank to a depth of approximately 3-14'.	The bridge will be removed and replaced with a culvert. Site will be impacted 100%

TABLE 5  
Continued

SITE NO.	LOCATION	NATURE OF WORK	IMPACT ON SITE
NLU-83-62	Ditch 1	The ditch is to be widened approximately 15' on the top right bank. No excavation material is to be placed in wooded area.	Approximately 15' of the site area will be impacted due to ditch widening
NLU-83-63	Ditch 1	The ditch is to be deepened by approximately 4'. Excavation material is not to be placed within 50' of the bridge	The bridge is not to be disturbed and no impact will occur at this site
NLU-83-64	Ditch 1	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
NLU-83-65	Ditch 8	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
NLU-83-66	Ditch 1	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work
NLU-83-67	Ditch 1	No work is proposed at this location under this contract	The site will not be impacted by the presently proposed work

#### RECOMMENDATIONS

##### 23CG115

This site which is potentially eligible for the National Register of Historic Places will not be impacted; no work is necessary at this time. However, if future additional plans will result in impact to the site, it should be further tested to determine its eligibility for the National Register of Historic Places.

##### Other Cultural Properties

The other 13 sites do not meet any of the criteria for inclusion on the National Register of Historic Places. Therefore, no additional archeological or architectural research is recommended at these locations. However, should buried cultural deposits be encountered during construction activities, construction should cease and the Missouri State Historic Preservation Office should be notified immediately.

# REFERENCES CITED

- ADOVASIO, J. M., J. D. GUNN, J. DONAHUE and R. STUCKENRATH  
1975 Excavations at Meadowcroft Rockshelter 1973-1974: A Progress Report. Pennsylvania Archeologist 45:1-30.
- ANONYMOUS  
1900 Biographical and Industrial Edition, Vol. XIII, No. 11, April 1900. Benton, Missouri.  
1901 Map of Cape Girardeau County. On file at Little River Drainage District Office. Cape Girardeau, Missouri.
- ASCH, N. B., R. I. FORD, and D. L. ASCH  
1972 Paleoethnobotany of the Foster Site: The Archaic Horizons. Illinois State Museum Reports of Investigation, No. 24.
- BAERRIS, D. A. and R. A. BRYSON  
1965 Climatic Episodes and the Dating of the Mississippian Culture. Wisconsin Archaeologist Vol. 46, No. 4, pp. 203-220.
- BROWMAN, DR. DAVID L., MICHAEL J. FULLER and J. FRED HARLAN  
1977 Cultural Resources Survey of the Proposed Sewer Interceptor Extension, City of Illmo, Scott County, Missouri.
- CALDWELL, J. R.  
1958 Trend and Tradition in the Prehistory of the Eastern United States. American Anthropological Association Memoir No. 88.
- CHAPMAN, C. H.  
1975 The Archaeology of Missouri, I. University of Missouri Press. Columbia, Missouri.  
1980 The Archaeology of Missouri, II. University of Missouri Press. Columbia, Missouri.
- COLE, FAYE-COOPER and OTHERS  
1951 Kincaid: A Prehistoric Illinois Metropolis. University of Chicago Press. Chicago.
- COLE, KENNETH  
1980 An Intensive Cultural Resources Survey of the Proposed Waters Park, Village of Commerce, Scott County, Missouri.
- COOLEY, ROBERT E. and MICHAEL J. FULLER  
1979 A Cultural Resources Survey of Areas to be Affected by Proposed Waste Water Facilities Plan at the Town of Benton, Scott County, Missouri.

COTTIER, JOHN W.

- 1977 An Area Archaeological Construction. In Investigation and Comparison of two Fortified Mississippi Tradition Archaeological Sites in Southeastern Missouri: A Preliminary Compilation. Missouri Archaeologist Vol. 38.

DEKIN, ALBERT A., JR.; CECIL R. BROOKS; DOUGLAS W. EDSALL; JAMES W. MEULLER; ROBERT PASNAK; PETER D. SKIRBUNT; SALLY K. TOMPKINS; with CHARLES H. LEEDECKER; JAMES H. O'DONNELL III; VANESSA E. PATRICK; GENIEVE Y. POIRIER; and PHYLLIS A. MORSE; MARTIN POSIASK and BERNARD W. POIRIER

- 1978 Predicting Cultural Resources in the St. Francis River Basin: A Research Design. Prepared for the Memphis District U.S. Army Corps of Engineers. Iroquois Research Institute.

DOUGLASS, ROBERT SIDNEY

- 1912 History of Southeast Missouri: A Narrative Account of Its Historical Progress, Its People and Its Principal Interests (2 volumes). The Lewis Publishing Company. Chicago and New York.

DRAGOO, DON W.

- 1976 Some Aspects of Eastern North American Prehistory: A Review 1975. American Antiquity Vol. 41: 3-27.

EVERS, EDWARD

- 1880 The Ancient Pottery of Southeastern Missouri. In Contributions to the Archaeology of Missouri Part 1. St. Louis Academy of Science. Salem, Massachusetts.

FAULKNER, CHARLES H.

- 1977 The Winter House: An Early Southeast Tradition, Midcontinental Journal of Archaeology, Vol. 2: 141-160.

FISK, HAROLD N., PH.D.

- 1944 Geological Investigation of the Alluvial Valley of the Lower Mississippi River. War Department, U.S. Army Corps of Engineers and Mississippi River Commission. Vicksburg, Mississippi.

FOWLER, MELVIN L.

- 1959a Summary Report of Modoc Rock Shelter 1952, 1953, 1955, 1956. Illinois State Museum Report of Investigations No. 8: 1-72.

- 1959b Modoc Rock Shelter, An Early Archaic Site in Southern Illinois. American Antiquity Vol. 24, No. 3:257-270.

FULLEN, MYRON L.

- 1912 The New Madrid Earthquake. Government Printing Office. Washington, D.C.

GRANTHAM, LARRY

- 1980 An Intensive Survey of Archaeological, Historic and Historic Architectural Resources, England City Park and French City Park, City of Caruthersville, Pemiscot County, Missouri. Land and Water Conservation Fund Project 29-01072D Survey Report No. 80-18. Division of Parks and Historic Preservation. Missouri Department of Natural Resources. Jefferson City, Missouri.

GRANTHAM, LARRY

- 1981 An Intensive Survey of Archeological, Historical and Historic Architectural Resources, Scott County Community Park Development Project, Scott County, Missouri.

GRIFFIN, JAMES B.

- 1952 Culture Periods in Eastern United States Archeology. In Archeology of Eastern United States, ed. J. B. Griffin, pp. 352-64. University of Chicago Press. Chicago.
- 1967 Eastern North American Archaeology: A Summary. Science Vol. 156: 175-191.
- 1968 Observations on Illinois Prehistory in Late Pleistocene and Early Recent Times. In The Quaternary of Illinois. R. E. Bergstrom, editor. University of Illinois, College of Agriculture, Special Publication No. 14. Urbana.

HARRIS, SUZANNE

- 1977 A Cultural Resources Assessment of a Proposed Magistrate Court Building and an N/A Office and Storage Building, Benton, Scott County, Missouri.

HARSHBERGER, J. W.

- 1958 Phytogeographic Survey of North America. 2nd Edition. H. R. Engelman. New York, New York.

HAYNES, C. V.

- 1964 Fluted Projectile Points: Their Age and Distribution. Science 145(3639):1408-13.

HOLMES, WILLIAM H.

- 1886 Ancient Pottery of the Mississippi Valley. Bureau of American Ethnology: 4th Annual Report, 1882-1883. U.S. Government Printing Office. Washington, D.C.
- 1903 Aboriginal pottery from the eastern United States. Bureau of American Ethnology: Twelfth Annual Report, 1890-1891. U. S. Government Printing Office. Washington, D. C.

HOUCK, LOUIS

- 1908 A History of Missouri (3 volumes). R. R. Donnelley and Sons. Chicago.

KING, JAMES E. and WILLIAM H. ALLEN, JR.

- 1977 A Holocene Vegetation Record from the Mississippi River Valley, Southeastern Missouri. Quaternary Research 8:307-323.

KING, JAMES E. and E. H. LINDSAY

- 1976 Late Quaternary Biotic Records from Spring Deposits in Western Missouri. In Prehistoric Man and His Environment, W. R. Wood and R. B. McMillian, eds. Academic Press.



- KOCHITIZKY, OTTO  
1906 Map of the Lowlands of Southeastern Missouri.
- KOENIG, J. W. ED.  
1961 The Stratigraphic Succession in Missouri. Vol. 40, 2nd Series, Missouri Geological Survey and Water Resources. Rolla.
- KRIEGER, A. D.  
1946 Culture Complexes and Chronology in Northern Texas. The University of Texas. Publication No. 4640. Austin.
- MACNEISH, R. S.  
1948 The Pre-Pottery Faulkner Site of Southern Illinois. American Antiquity Vol. 13 No. 3:232-243.
- MCNERNEY, MICHAEL J.  
1977 A Cultural Resource Survey of Selected Revetment and Dike Locations, Mississippi River Miles 10.0-56.0 and 56.0-105.6 Above the Mouth of the Ohio River. Prepared for U.S. Army Corps of Engineers, St. Louis District. Fischer-Stein Associates, Cultural Resource Management Studies No. 16.  
  
1979 A Cultural Resources Literature Search for the St. Johns Bayou and New Madrid Floodway, New Madrid, Scott and Mississippi Counties; Missouri. Prepared for the U.S. Army Corps of Engineers, Memphis District by Fischer-Stein Associates. Cultural Resources Management Study No. 35.
- MCNERNEY, MICHAEL J. and RICHARD C. FISCHER  
1978 An Intensive Cultural Resources Survey and Assessment of Proposed Levee Modifications at Item No. R-950, Wyatt Berm, Mississippi County, Missouri and Item R-892, Hubbard Lake Berm, New Madrid County, Missouri. Prepared for the U.S. Army Corps of Engineers, Memphis District by Fischer-Stein Associates, Cultural Resources Management Study No. 25.
- MCNERNEY, MICHAEL J. and R. GAIL WHITE  
1982a An Archaeological and Historical Resources Survey of 21 Mississippi River Levee Berm Items: Component 2, Southeast Missouri. Prepared for the US Army Corps of Engineers, Memphis District, Contract #DACW66-79-C-0079, by Fischer Stein Associates. Cultural Resources Management Report No.48.  
  
1982b An Archaeological, Architectural and Historical Resources Survey of 21 Mississippi River Levee Berm Items. The New Madrid Floodway, Component 4. Prepared for the US Army Corps of Engineers, Memphis District, Contract #DACW66-79-C-0079, by Fischer Stein Associates. Cultural Resources Management Report No. 48.
- MARCH, DAVID D.  
1967 The History of Missouri (2 volumes). Lewis Historical Publishing Company, Inc. New York and West Palm Beach.

MARSHALL, R. A.

1965a An Archeological Investigation in Interstate Route 55 through New Madrid and Pemiscot Counties, Missouri, 1964. Highway Archaeology Report No. 1, Missouri State Highway Department and the University of Missouri. Columbia.

1965b Archeological Investigations in the Meremac Spring, St. James, Missouri Locality. Manuscript on file at American Division of Archeology. Columbia.

MEYER, DUANE

1973 The Heritage of Missouri: A History. State Publishing Company. St. Louis.

MILLER, R. A.

1974 The Geological History of Tennessee. Department of Conservation, Division of Geology. Nashville, Tennessee.

MISSISSIPPI RIVER COMMISSION

1975 Master Index, Upper and Lower Mississippi River. Surveys for Period 1879-80 to 1928 and Some Historic Maps Prior To This Period (2 volumes). Published by the Mississippi River Commission. Vicksburg.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

1981 Geologic Map of Missouri.

MOORE, CLARENCE BLOOMFIELD

1911 Some Aboriginal Sites on the Mississippi River. Journal of the Academy of Natural Science of Philadelphia 14:346-480.

MORSE, DAN F.

1971 Recent Indications of Dalton Settlement Pattern in Northeast Arkansas. Southeastern Archeological Conference, Bulletin, Volume 13, pp. 5-10.

MOSIMANN, J. E. and P. S. MARTIN

1975 Simulating Overkill By Paleoindians. American Scientist Vol. 63, pp. 304-312.

PHILLIPS, PHILIP; JAMES A. FORD and JAMES B. GRIFFIN

1951 Archaeological Survey in the Lower Mississippi Alluvial Valley, 1940-1947. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 25. Cambridge.

PHILLIPS, PHILIP

1970 Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 6 Part 2. Peabody Museum, Cambridge.

PRICE, CYNTHIA R.

- 1979 A Cultural Resources Survey of Areas to be Disturbed by Proposed Subdivision Development Near the Town of Morely, Scott County, Missouri (part 1).

PRICE, JAMES E.

- 1976 Final Report of an Archeological Survey and Cultural Resource Assessment for a Sewage Treatment Facility and Expanded Water System for the Town of Miner, Scott County, Missouri. American Archaeological Division, University of Missouri. Columbia.

PRICE, JAMES E., LYNN D. MORROW and CYNTHIA R. PRICE

- 1978 A Preliminary Literature Review of the Prehistoric and Historic Cultural Resources for the M & A Power Corporation Power Line Transect in New Madrid, Dunklin and Pemiscot Counties, Missouri, and Mississippi County, Arkansas. 1978 Project: CAR 146 A Cultural Resources Survey Conducted for the Missouri and Arkansas Power Corporation by the Center for Archaeological Research, Southwest Missouri State University. Springfield.

PRICE, JAMES E. and CYNTHIA R. PRICE

- 1981 A Cultural Resource Survey of Areas to be Affected by Water System Improvements for the Town of Fruitland, Cape Girardeau County, Missouri.

RAFFERTY, MILTON D.

- 1981 Historical Atlas of Missouri. University of Oklahoma Press. Norman.

REAGAN, M. T. and D. R. EVANS

- 1976 Archeological Investigations at the Schriver Site: 23DV12, Daviess County, Missouri. American Archeology Reports No. 9, American Archeology Division, University of Missouri, Columbia.

SAUCIER, ROGER T.

- 1974 Quaternary Geology of the Lower Mississippi Valley. Arkansas Archeological Survey, Research Series No. 6.

SCHIFFER, MICHAEL B.

- 1975 An Alternative to Morse's Dalton Settlement Pattern Hypothesis. Plains Anthropologist, Volume 20, No. 70, Part 1, pp. 253-266.

SCHULTZ, EARL R.

- 1973 A Sketch of the Little River Drainage System. Unpublished manuscript on file at the Little River Drainage District. Cape Girardeau.

SIMPSON, G. G.

- 1941 Large Pleistocene Felines in North America. The American Museum of Natural History, No. 1136, pp. 20-27.
- 1945 Notes on Pleistocene and Recent Tapirs. Bulletin of the American Museum of Natural History Vol. 86, pp. 53-81.

- SNEIDER, FELIX EUGENE and EARL AUGUSTUS COLLINS  
 1956 Cape Girardeau: Biography of a City. Ramfire Press. Cape Girardeau.
- SQUIER, E. G. and E. H. DAVIS  
 1848 Ancient Monuments of the Mississippi Valley. Smithsonian Contributions to Knowledge, Vol. 1. Washington, D.C.
- STEYERMARK, J. A.  
 1963 Flora of Missouri. Iowa State University Press. Ames, Iowa.
- TANDARICH, JOHN P. AND MICHAEL J. REAGAN  
 1978 A Cultural Resource Overview of the Mississippi County Spillway Watershed and Peafield Drainage, Missouri. Report prepared for the Office of Historic Preservation, Missouri Department of Natural Resources. Jefferson City, Missouri.
- THILENIUS, JESS E.  
 n.d. Biography of Historic Cape Girardeau County. Published by the Bicentennial Committee of Cape Girardeau. Cape Girardeau.
- U.S.D.A.-S.C.S.  
 1981 Soil Survey of Cape Girardeau, Mississippi and Scott Counties, Missouri. U.S.D.A.-S.C.S. in cooperation with the Missouri Agricultural Experiment Station.
- U.S.G.S.  
 1934 Morley, Missouri 15' topographic quadrangle.  
 1939 Morley, Missouri 15' topographic quadrangle.  
 1966 Morley, Missouri 15' topographic quadrangle.  
 1978 Chaffee, Missouri 7.5' photorevised topographic quadrangle.  
 1978 Scott City, Missouri 7.5' photorevised topographic quadrangle.
- WEICHMAN, MICHAEL S.  
 1982 Preliminary Draft Master Plan for Archeological Resource Protection in Missouri.
- WHARTON, C. H.  
 1978 The Natural Environments of Georgia. Georgia Department of Natural Resources. Atlanta.
- WILLEY, GORDON R. and JEREMY A. SABLOFF  
 1974 A History of American Archaeology. W. H. Freeman and Company. San Francisco.
- WILLIAMS, J. R.  
 1971 A Study of the Baytown Phase in the Cairo Lowlands of Southeast Missouri. Ph.D. Dissertation, Department of Anthropology, University of Missouri, Columbia.

WILLIAMS, J. R.

1972 Land Leveling Salvage Archaeology in Missouri 1968: Report to the National Park Service on Contracts 14-10-2: 920-345 and 14-10-2: 920-438. Midwest Research Center. Lincoln.

1974 The Baytown Phases in the Cairo Lowland of Southeast Missouri. The Missouri Archaeologist, Vol. 36.

WILLIAMS, WALTER

1904 The State of Missouri. E. W. Stevens Press. Columbia.

WINTERS, HOWARD D.

1969 The Riverton Culture. Illinois State Museum Reports of Investigations No. 13. Springfield.

WRIGHT, H. E. Jr.

1968 History of the Prairie Peninsula. In The Quaternary of Illinois, ed. R. E. Bergstrom, pp. 78-88. University of Illinois College of Agriculture Special Publication No. 14, Urbana.

YARNELL, RICHARD A.

1964 Aboriginal Relationships Between Culture and Plant Life in the Upper Great Lakes Region. University of Michigan, Museum of Anthropology, Anthropological Papers, No. 23.

APPENDIX A  
SCOPE OF WORK

## SECTION C - DESCRIPTION/SPECIFICATIONS (SCOPE OF WORK)

### C-1. GENERAL.

C-1.1. The Contractor shall conduct a background, archival and literature search and intensive survey investigation of select Mississippi River levee berms in Crittenden and Desha Counties, Arkansas, and Mississippi, Scott, Cape Girardeau, and Pemiscot Counties, Missouri. These tasks are in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (P.L. 89-665), as amended; the National Environment Policy Act of 1969 (P.L. 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971 (36 F.R. 3921); Preservation of Historic and Archaeological Data, 1974 (P.L. 93-291), as amended; and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

### C-1.2. Personnel Standards.

a. The Contractor shall utilize a systematic, interdisciplinary approach to conduct the study. Specialized knowledge and skills will be used during the course of the study to include expertise in archeology, history, architecture, geology and other disciplines as required to produce acceptable reports. Techniques and methodologies used for the study shall be representative of the state of current professional knowledge and development.

b. The following minimal experiential and academic standards shall apply to personnel involved in cultural resources investigations described in this Scope of Work:

(1). Archeological Project Directors or Principal Investigator(s) (PI). Individuals in charge of an archeological project or research investigation contract, in addition to meeting the appropriate standards for archeologist, must have a publication record that demonstrates extensive experience in successful field project formulation, execution and technical monograph reporting. The Contracting Officer may also require suitable professional references to obtain estimates regarding the adequacy of prior work.

(2). Archeologist. The minimum formal qualifications for individuals practicing archeology as a profession are a B.A. or B.S. degree from an accredited college or university, followed by a minimum of two years of successful graduate study with concentration in anthropology and specialization in archeology and at least two summer field schools or their equivalent under the supervision of archeologists of recognized competence. A Master's thesis or its equivalent in research and publication is highly recommended, as is the M.A. degree.

(3). Other Professional Personnel. All non-archeological personnel utilized for their special knowledge and expertise must have a B.A. or B.S. degree from an accredited college or university, followed by a minimum of one year of successful graduate study with concentration in appropriate study.

(4). Other Supervisory Personnel. Persons in any archeological supervisory position must hold a B.A., B.S. or M. A. degree with a concentration in archeology and a minimum of 2 years of field and laboratory experience.

(5). Crew Members and Lab Workers. All crew members and lab workers must have prior experience compatible with the tasks to be performed under this contract. An academic background in archeology/anthropology is highly recommended.

c. All operations shall be conducted under the supervision of qualified professionals in the discipline appropriate to the data that is to be discovered, described or analyzed. Vitae of personnel involved in project activities may be required by the Contracting Officer at anytime during the period of service of this contract.

C-1.3. The Contractor shall designate in writing the name of the Principal Investigator. Participation time of the Principal Investigator shall average a minimum of 50 hours per month during the period of service of this contract. In the event of controversy or court challenge, the Principal Investigator shall be available to testify with respect to report findings. The additional services and expenses would be at Government expense, per paragraph 1.08 below.

C-1.4. The Contractor shall keep standard field records which may be reviewed by the Contracting Officer. These records shall include field notes, appropriate state site survey forms and any other cultural resource forms and/or records, field maps and photographs necessary to successfully implement requirements of this Scope of Work.

C-1.5. To conduct the field investigation, the Contractor will obtain all necessary permits, licenses, and approvals from all local, state and Federal authorities. Should it become necessary in the performance of the work and services of the Contractor to secure the right of ingress and egress to perform any of the work required herein on properties not owned or controlled by the Government, the Contractor shall secure the consent of the owner, his representative, or agent, prior to effecting entry on such property.

C-1.6. Innovative approaches to data location, collection, description and analysis, consistent with other provisions of this contract and the cultural resources requirements of the Government, are encouraged.

C-1.7. No mechanical power equipment shall be utilized in any cultural resource activity without specific written permission of the Contracting Officer.



C-1.8. The Contractor shall furnish expert personnel to attend conferences and furnish testimony in any judicial proceedings involving the archeological and historical study, evaluation, analysis and report. When required, arrangements for these services and payment therefor will be made by representatives of either the Corps of Engineers or the Department of Justice.

C-1.9. The Contractor, prior to the acceptance of the final report, shall not release any sketch, photograph, report or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.

C-1.10. The extent and character of the work to be accomplished by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer. The Contracting Officer may have a representative of the Government present during any or all phases of the described cultural resource project.

## C-2. STUDY AREA.

C-2.1. Henrico (R-606). Within an imaginary plane figure beginning at station 57/0+00 and proceeding to station 61/6+07 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 457.2m (1,500 ft) or top bank riverside of the levee. Thence from station 61/6+07 to station 64/48+00 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) riverside of the levee. This area is located in Desha County, Arkansas, and is shown on the Mellwood, Arkansas-Mississippi and Henrico, Arkansas, 15 minute quadrangle maps.

C-2.2. Knowlton (R-618). Within an imaginary plane figure beginning at station 49/0+00 and proceeding to station 50/0+00 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the levee centerline) and 609.6m (2,000 ft) or top bank riverside of the levee. Thence from station 50/0+00 to station 51/0+00 bounded by 152.4m (500 ft) landside of the levee and 304.8m (1,000 ft) riverside of the levee. Thence from station 51/0+00 to station 52/49+05 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Desha County, Arkansas, and is shown on the Mellwood, Arkansas-Mississippi, 15 minute quadrangle map.

C-2.3. Porter Lake (R-703). Within an imaginary plane figure beginning at station 180/0+00 and proceeding to station 181/2+50 bounded by 0m (0 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 91.5m (300 ft) or top bank river side of the levee. This area is located in Crittenden County, Arkansas, and is shown on the Horseshoe Lake, Arkansas-Mississippi-Tennessee, 15 minute quadrangle map.

C-2.4. Lambethville (R-752). Within an imaginary plane figure beginning at station 125/39+00 and proceeding to station 129/10+00 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Crittenden County, Arkansas, and is shown on the Jericho, Arkansas-Tennessee, 15 minute quadrangle map.

C-2.5. Caruthersville (R-846). Within an imaginary plane figure beginning at station 26/0+00 and proceeding to station 28/0+00 bounded by top bank riverside of the levee. The area is located in Pemiscot County, Missouri, and is shown on the Caruthersville, Missouri-Tennessee-Arkansas, 15 minute quadrangle map.

C-2.6. Above Dorena, Parcel 2 (R-929). Within an imaginary plane figure beginning at station 60/38+00 and proceeding to station 62/34+00 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Mississippi County, Missouri and is shown on the Hickman, Kentucky-Missouri-Tennessee 15 minute quadrangle map.

C-2.7. Nash Well Relief Channels (R-48.87 a.c.).

a. Ditch A. Within an imaginary plane figure beginning at station 8/34+00 and proceeding northeast along the toe of the existing levee to station 9/22+50; thence proceeding southeast to a point 107m (350 ft) distant from the toe of the levee; thence proceeding southwest and maintaining the 107m (350 ft) corridor to station 9/16+50; then proceeding to the northwest for 46m (150 ft); here turning again to the southwest and proceeding to station 8/34+00 while maintaining the 61m (200 ft) distance from the toe of the existing levee; and turning to close the figure. The work area is located within Cape Girardeau County, Missouri, and appears on the Morley, Missouri, 15 minute quadrangle map.

b. Ditch B. Within an imaginary plane figure beginning at station 9/22+50 and proceeding northeast along the toe of the existing levee to station 9/42+78; then turning roughly southwest to follow the proximal RR ROW limit (15m (50 ft) from the RR centerline) to a point 30m (100 ft) distant from the centerline of Ditch B at station 9/24+00 and moving south-southeast another 61m (200 ft); then proceeding to the southwest to station 9/22+50 while maintaining the 91m (300 ft) distance from the centerline of Ditch B and finally turning to close the figure. Ditch B is in Cape Girardeau County, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map.

c. Ditch C. Within an imaginary plane figure beginning at station 11/0+00 and proceeding southwest along the proximal RR ROW limit until reaching station 9/45+00; thence proceeding roughly south for 4m (12 ft); then proceeding to the northeast to a point 8m (25 ft) distant from the RR ROW limit at station 9/50+00. Continuing to a point 9m (30 ft) distant from the RR ROW limit at station 10/16+00; now proceeding to the northeast to a point 46m (150 ft) distant from the RR ROW limit at station 10/19+00 and continuing

to the northeast to a point also 46m (150 ft) distant from the RR ROW limit at station 10/48+50; thence proceeding northwest for 21m (70 ft) and again proceeding northeast to a point 30m (100 ft) distant from the proximal RR ROW limit at station 11/0+00; thence turning to close the figure. The work area is within Cape Girardeau County, Missouri, and shown on the Morley, Missouri, 15 minute quadrangle map.

d. Ditch D. Within an imaginary plane figure beginning at station 13/7+59 and using the distal top bank of existing Ditch D as the southern boundary; proceeding west to Station 11/4+80; thence proceeding roughly north to the toe of the existing levee and following this line to the east (allowing for the inclusion of the illustrated disposal area), and closing the figure at station 13/7+59. Now beginning at station 11/4+80 proceeding southwest along the proximal boundary of the Railway right-of-way (RR ROW) (50 feet from the centerline of the tracks) to station 11/0+00; thence roughly south to a point 98m (320 ft) distant; then proceeding northeast and maintaining the 98m (320 ft) corridor; now turning to close the figure at station 11/4+80. These areas are shown on drawings 3 and 4, provided by the Government. The work area is with Cape Girardeau County, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map.

e. Ditch Number One. There shall be a channel and floodway, hereinafter called Ditch Number One, constructed along a center line beginning at the northeast corner of the northwest quarter of Section Thirty-six, Township Thirty, Range Thirteen, thence west to the northwest corner of Section Thirty-five in said Township; thence south to the quarter section corner on the west line of Section Thirty-five; thence west through the middle of Sections Thirty-four and Thirty-three, to the quarter corner of the west line of Section Thirty-three; thence south to a point five hundred feet south of the southwest corner of said Section Thirty-three; thence south sixty-two degrees and thirty minutes west, seventy-three hundred feet; thence south twelve hundred and fifty feet to a point one hundred feet south of the center of the Saint Louis-Southwestern Railway, eight hundred and fifty feet west of its crossing with the Saint Louis, Memphis & Southeastern Railway in Section Five, Township Twenty-nine, Range Thirteen; thence south fifty-four degrees west, sixteen thousand feet (intersecting the west line of Section Thirteen, Township Twenty-nine, Range Twelve eleven hundred feet north of the quarter section corner, on the west line of said Section); thence south thirty-five degrees west, eighteen thousand three hundred feet, to a point six hundred and eighty feet south of the northeast corner of Section Thirty-three, Township Twenty-nine, Range Twelve; thence south to the southeast corner of said Section; thence south thirteen degrees west, to the southwest corner of the southeast quarter of the southeast quarter of Section Four, Township Twenty-eight, Range Twelve. Work area located within Scott County, Missouri, and shown on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact areas as illustrated by drawings 21876; 101/356 (5), (6) and (7).

f. Ditch Number Four. Ditch Number Four is located along a center line beginning at the west side of the Rock Levee Road in the northeast quarter of Section Twenty-five, Township Thirty, Range Thirteen, and Twenty-five feet north of the south line of the right-of-way, described for Whitewater River

Deflection Channel and Levee, and extending west, parallel with said right-of-way line to a point fifty feet distant (measured at right angles) from the south right-of-way line at the St. Louis and San Francisco Railroad in Section Twenty-seven in said Township, thence southwest parallel to said railroad to the west line of Section Twenty-seven in said township, thence south along the west lines of sections Twenty seven and Thirty-four to intersect Ditch Number One. The work is within Scott and Cape Girardeau Counties, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact area as illustrated by drawing 21876; 101/356(5).

g. Ditch Number Eight. Ditch Number Eight is located along a center line, beginning seventy feet, north twenty-eight degrees east from the trestle on the Saint Louis, Memphis & Southeastern Railroad, two thousand three hundred feet west of the east line of Section Twenty-nine, Township Thirty, Range Thirteen, measured along said Railroad; thence South Twenty-eight degrees west, ninety six hundred feet (intersecting the south line of Section Thirty-two in said Township, one hundred feet east of the southwest corner); thence south thirteen hundred feet to the intersection with Ditch Number One. The ditch alignment follows, in part, the boundary of Scott and Cape Girardeau Counties and appears on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact area as illustrated by drawing 21876; 101/356(8).

### C-3. DEFINITIONS.

C-3.1. "Cultural resources" are defined to include any buildings, site, district, structure, object, data, or other material relating to the history, architecture, archeology, or culture of an area.

C-3.2. "Background and Literature Search" is defined as a comprehensive examination of existing literature and records for the purpose of inferring the potential presence and character of cultural resources in the study area. The examination may also serve as collateral information to field data in evaluating the eligibility of cultural resources for inclusion in the National Register of Historic Places or in ameliorating losses of significant data in such resources.

C-3.3. "Intensive Survey" is defined as a comprehensive, systematic, and detailed on-the-ground survey of an area, of sufficient intensity to determine the number, types, extent and distribution of cultural resources present and their relationship to project features.

C-3.4. "Mitigation" is defined as the amelioration of losses of significant prehistoric, historic, or architectural resources which will be accomplished through preplanned actions to avoid, preserve, protect, or minimize adverse effect upon such resources or to recover a representative sample of the data they contain by implementation of scientific research and other professional techniques and procedures. Mitigation of losses of cultural resources includes, but is not limited to, such measures as: (1) recovery and preservation of an adequate sample of archeological data to allow for analysis and published interpretation of the cultural and environmental conditions prevailing at the time(s) the area was utilized by man; (2) recording, through

architectural quality photographs and/or measured drawings of buildings, structures, districts, sites and objects and deposition of such documentation in the Library of Congress as a part of the National Architectural and Engineering Record; (3) relocation of buildings, structures and objects; (4) modification of plans or authorized projects to provide for preservation of resources in place; (5) reduction or elimination of impacts by engineering solutions to avoid mechanical effects of wave wash, scour, sedimentation and related processes and the effects of saturation.

C-3.5. "Reconnaissance" is defined as an on-the-ground examination of selected portions of the study area, and related analysis adequate to assess the general nature of resources in the overall study area and the probable impact on resources of alternate plans under consideration. Normally reconnaissance will involve the intensive examination of not more than 15 percent of the total proposed impact area.

C-3.6. "Significance" is attributable to those cultural resources of historical, architectural, or archeological value when such properties are included in or have been determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places after evaluation against the criteria contained in How to Complete National Register Forms.

C-3.7. "Testing" is defined as the systematic removal of the scientific, prehistoric, historic, and/or archeological data that provide an archeological or architectural property with its research or data value. Testing may include controlled surface survey, shovel testing, profiling, and limited subsurface test excavations of the properties to be affected for purposes of research planning, the development of specific plans for research activities and excavation, preparation of notes and records, and other forms of physical removal of data and the analysis of such data and material, preparation of reports on such data and material and dissemination of reports and other products of the research. Subsurface testing shall not proceed to the level of mitigation.

C-3.8. "Analysis" is the systematic examination of material data, environmental data, ethnographic data, written records, or other data which may be prerequisite to adequately evaluating those qualities of cultural loci which contribute to their significance.

#### C-4. GENERAL PERFORMANCE SPECIFICATIONS

C-4.1. The Contractor shall prepare for each of the project areas a draft and final report detailing the results of the individual studies and subsequent recommendations.

##### C-4.2 Background and Literature Search

a. This task shall include an examination of the historic and prehistoric environmental setting and cultural background of the study area and shall be

of sufficient magnitude to achieve a detailed understanding of the overall cultural and environmental context of the study area. It is axiomatic that the background and literature search shall normally precede the initiation of all fieldwork.

b. Information and data for the literature search shall be obtained, as appropriate, from the following sources: (1) Scholarly reports - books, journals, theses, dissertations and unpublished papers; (2) Official Records - Federal, state, county and local levels, property deeds, public works and other regulatory department records and maps; (3) Libraries and Museums - both regional and local libraries, historical societies, universities, and museums; (4) Other repositories - such as private collections, papers, photographs, etc.; (5) archeological site files at local universities, the State Historic Preservation Office, the office of the State Archeologist; (6) Consultation with qualified professionals familiar with the cultural resources in the area, as well as consultation with professionals in associated areas such as history, sedimentology, geomorphology, agronomy, and ethnology.

c. The Contractor shall include as an appendix to the draft and final reports written evidence of all consultation and any subsequent response(s), including the dates of such consultation and communications.

d. The background and literature search shall be performed in such a manner as to facilitate predictive statements (to be included in the study report) concerning the probable quantity, character, and distribution of cultural resources within the project area. In addition, information obtained in the background and literature search should be of such scope and detail as to serve as an adequate data base for subsequent field work and analysis in the study area undertaken for the purpose of discerning the character, distribution and significance of identified cultural resources.

e. In order to accomplish the objectives described in paragraph 4.02.d., it will be necessary to attempt to establish a relationship between landforms and the patterns of their utilization by successive groups of human inhabitants. This task should involve defining and describing various zones of the study area with specific reference to such variables as past topography, potential food resources, soils, geology, and river channel history.

#### C-4.3. Intensive Survey.

a. Intensive Survey shall include the on-the-ground examination of the project areas described in paragraph 2.0 sufficiently to insure the location and preliminary evaluation of all cultural resources in the study area and to fulfill report requirements.

b. Unless excellent ground visibility and other conditions conducive to the observation of cultural evidence occurs, shovel test pits, or comparable

subsurface excavation units, shall be installed at intervals no greater than 30 meters throughout the study area. Note that auger samples, probes, and coring tools will not be considered comparable subsurface units. Shovel test pits shall be minimally 30 x 30 centimeters in size and extend to a minimum depth of 50 centimeters. All such units shall be screened using 1/2" mesh hardware cloth. Additional shovel test pits shall be excavated in areas judged by the Principal Investigator to display a high potential for the presence of cultural resources. If, during the course of intensive survey activities, areas are encountered in which disturbance or other factors clearly and decisively preclude the possible presence of significant cultural resources, the Contractor shall carefully examine and document the nature and extent of the factors and then proceed with survey activities in the remainder of the study area. Documentation and justification of such action shall appear in the survey report. The location of all shovel test units and surface observations with respect to site geometry shall be recorded and appear in the draft and final reports.

c. When cultural remains are encountered, horizontal site boundaries shall be derived by the use of surface observation procedures (where surface conditions are highly conducive to the observation of cultural evidence) or by screened shovel cut units or by a combination of these methods and in such a manner as to allow precise location of site boundaries on Government project drawings and 7.5 minute U.S.G.S. quad maps when available. Methods used to establish site boundaries shall be discussed in the survey report together with the probable accuracy of the boundaries. The Contractor shall establish a datum at the discovered cultural loci which shall be precisely related to the site boundaries as well as to a permanent reference point (in terms of azimuth and distance). If possible, the permanent reference point used shall appear on Government blue-line (project) drawings and/or 7.5 minute U.S.G.S. quad maps. If no permanent landmark is available, a permanent datum shall be established in a secure location for use as a reference point. The permanent datum shall be precisely plotted and shown on U.S.G.S. quad maps and project drawings. All descriptions of site location shall refer to the location of the primary site datum.

d. Upon approval of the Contracting Officer or his authorized representative, the delineation of precise site boundaries may be deferred until the implementation of testing activities.

#### C-4.4 Testing Activities

##### a. Initial Site Testing

(1) Surface collection of the site area shall be accomplished in order to obtain data representative of total site surface content. Both historic and prehistoric items shall be collected. The Contractor shall carefully note and record descriptions of surface conditions of the site including ground cover and the suitability of soil surfaces for detecting cultural items (ex: recent rainfall, standing water or mud). If ground surfaces are not highly conducive to surface collection, screened shovel test units shall be used to augment surface collection procedures.

(2) Care should be taken to avoid bias in collecting certain classes of data or artifact types to the exclusion of others (ex: debitage or faunal remains) so as to insure that collections accurately reflect both the full range and the relative proportions of data classes present (ex: the proportion of debitage to implements or types of implements to each other). Such a collecting strategy shall require the total collection of quadrat or other sample units in sufficient quantities to reasonably assure that sample data are representative of such discrete site subareas as may exist. Since the number and placement of such sample units will depend, in part, on the subjective evaluation of intrasite variability, and the amount of ground cover, the Contractor shall describe the rationale for the number and distribution of collection units. In the event that the Contractor utilizes systematic sampling procedures in obtaining representative surface samples, care should be taken to avoid periodicity in recovered data. No individual sample unit type used in surface data collection shall exceed 6 square meters in area.

(3) The Contractor shall undertake (in addition and subsequent to sample surface collecting) a general site collection in order to increase the sample size of certain classes of data which the Principal Investigator may deem prerequisite to an adequate site-specific and intersite evaluation of data.

(4) As an alternative to surface collecting procedures discussed above, where surface visibility is excellent, the Contractor may collect all visible artifacts. If such a procedure is undertaken, the precise proveniences of all individual artifacts shall be related to the primary site datum and recorded.

(5) Unless it can be conclusively and definitely demonstrated that no significant subsurface cultural resources occur at a site, the Contractor shall install in each appropriate site a minimum of one 1 X 1 meter subsurface test unit to determine the presence and general nature of subsurface deposits.

(6) Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and in 10 cm. levels within zones where possible). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated unit. Subsequent to preparation of profile drawings for each test unit, the unit shall be backfilled and compacted to provide reasonable pedestrian safety.



(7) During the course of the intensive survey, the Contractor should observe and record local environmental, physiographic, geological or other variables (including estimates of ground visibility and descriptions of soil characteristics) which may be useful in evaluating the effectiveness of survey procedures and providing comparative data for use in predictive statements which may be utilized in future Government cultural resource investigations.

(8) When sites are not wholly contained within the right-of-way limits, the Contractor shall survey an area outside the right-of-way limits large enough to include the entire site within the survey area. This shall be done in an effort to delineate site boundaries and to determine the degree to which the site will be impacted.

b. Additional Site Testing

(1) Multiple 1 X 1 meter subsurface test units may be required at many sites. The proposed number and distribution of such test units shall be determined by the Principal Investigator on a site specific basis. This determination shall be made based on such variables as site size and potential intrasite variability, including physiographic and geomorphological characteristics of the loci which may suggest variability in the presence or distribution of subsurface cultural deposits. The Contractor shall detail the rationale(s) for the placement and numbers of such test units in the report of field activities. The placement and numbers of additional test units shall be negotiated with the Contracting Officer and if an agreement is reached a change order shall be issued prior to conduct of the work. Such testing will provide a data base of sufficient nature to allow a determination of site eligibility to the National Register of Historic Places.

(2) Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and in 10 cm levels within zones where appropriate). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated units.

(3) Stringent horizontal spatial control of testing will be maintained by relating the location of all collection and test units to the primary site datum.

(4) Other types of subsurface units may, at the Contractor's option, be utilized in addition to those units required by this Scope of Work.

(5) Subsurface investigations will be limited to testing and shall not proceed to the level of mitigation.

(6) In order to accurately relate a site to research domains, i.e., assess significance or insignificance, a variety of data gathering techniques may be required to insure recovery of the various types of data which may be present at the site. These techniques may include but not be limited to flotation and excavation of cultural features. When appropriate, these types of data gathering activities should be integral elements of the testing strategy.

C-4.5. Analysis and Curation. Unless otherwise indicated, artifactual and non-artifactual analysis shall be of an adequate level and nature to fulfill the requirements of this Scope of Work. All recovered cultural items shall be cataloged in a manner consistent with state requirements or standards of curation in the state in which the study occurs. The Contractor shall consult with appropriate state officials as soon as possible following the conclusion of fieldwork in order to obtain information (ex: accession numbers) prerequisite to such cataloging procedures. The Contractor shall have access to a depository for notes, photographs and artifacts (preferably in the state in which the study occurs) where they can be permanently available for study by qualified scholars. If such materials are not in Federal ownership, applicable state laws, if any, should be followed concerning the disposition of the materials after the completion of the final report. Efforts to insure the permanent curation of properly cataloged cultural resources materials in an appropriate institution shall be considered an integral part of the requirements of this Scope of Work.

#### C-5. GENERAL REPORT REQUIREMENTS.

C-5.1. The primary purpose of the cultural resources report is to serve as a planning tool which aids the Government in meeting its obligations to preserve and protect our cultural heritage. The report will be in the form of a comprehensive, scholarly document that not only fulfills mandated legal requirements but also serves as a scientific reference for future cultural resources studies. As such, the report's content must be not only descriptive but also analytic in nature.

C-5.2. Upon completion of all field investigation and research, the Contractor shall prepare reports detailing the work accomplished, the results, the recommendations, and appropriate alternative mitigation measures, when required, for each project area. The format suggested by Guidelines for Contract Cultural Resource Survey Reports and Professional Qualifications as prepared by the Missouri Department of Natural Resources should be reviewed and, to the extent allowed by this Scope of Work utilized as an aid in preparing the required report for work in Missouri. To the extent permitted by this Scope of Work, the work in Arkansas shall follow the Standards for Fieldwork and Reports as prepared by the Arkansas Archeological Survey.

C-5.3. The report shall include, but not necessarily be limited to, the following sections and items:

a. Title Page. The title page should provide the following information; the type of task undertaken, the cultural resources which were assessed (archeological, historical, architectural); the project name and location (county and state), the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or the Principal Investigator; and the agency for which the report is being prepared.

b. Abstract. The abstract should include a summary of the number and types of resources which were surveyed, results of activities and the recommendations of the Principal Investigator.

c. Table of Contents.

d. Introduction. This section shall include the purpose of the report; a description of the proposed project; a map of the general area; a project map; and the dates during which the task was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Context. This section shall contain, but not be limited to, a discussion of probable past floral and faunal characteristics of the project area. Since data in this section will be used in the evaluation of specific cultural resource significance, it is imperative that the quantity and quality of environmental data be sufficient to allow subsequent detailed analysis of the relationship between past cultural activities and environmental variables.

f. Previous Research. This section shall describe previous research which may be useful in deriving or interpreting relevant background research data, problem domains, or research questions and in providing a context in which to examine the probability of occurrence and significance of cultural resources in the study area.

g. Literature Search and Personal Interviews. This section shall discuss the results of the literature search, including specific data sources, and personal interviews which were conducted during the course of investigations.

h. Survey, Testing and Analytical Methods. This section shall contain an explicit discussion of research and/or survey strategy, and should demonstrate how environmental data, previous research data, the literature search and personal interviews have been utilized in constructing such a strategy.

i. Survey, Testing and Analytical Results. This section shall discuss archeological, architectural, and historical resources surveyed, tested and analyzed; the nature and results of analysis, and the scientific importance or significance of the work. Quantified listings and descriptions of artifacts and their proveniences may be included in this section or added to the report as an appendix. Inventoried sites shall include a site number.

1. Recommendations.

(1) This section should contain the recommendations of the Principal Investigator based on the significance and degree of impact of the project on the cultural resources. Assessment of the eligibility of specific cultural properties for inclusion in the National Register of Historic Places shall be made for cultural resources.

(2) It will not be considered adequate to evaluate a resource on the basis of inferred potential with a recommendation for further testing in order to determine significance. Significance should be discussed explicitly in terms of previous regional and local research and relevant problem domains. Statements concerning significance shall contain a detailed, well-reasoned argument for the property's research potential in contributing to the understanding of cultural patterns, processes or activities important to the history or prehistory of the locality, region or nation, or other criteria of significance. Conclusions concerning insignificance likewise, shall be fully documented and contain detailed and well-reasoned arguments as to why the property fails to display adequate research potential or other characteristics adequate to meet National Register criteria of significance. For example, conclusions concerning significance or insignificance relating solely to the lack of contextual integrity due to plow disturbance or the lack of subsurface deposits will be considered inadequate. Where appropriate, due consideration should be given to the data potential of such variables as site functional characteristics, horizontal intersite or intrasite spatial patterning of data and the importance of the site as a representative systemic element in the patterning of human behavior. The Contractor should be guided, in this regard, by Archeological Property Nominations by Tom King (Published in 1993, Vol. 1, No. 2). All report conclusions and recommendations shall be logically and explicitly derived from data discussed in the report.

(3) The significance or insignificance of cultural resources can be determined adequately only within the context of the most recent available local and regional data base. Consequently the evaluation of specific individual cultural loci examined during the course of contract activities shall relate these resources not only to previously known cultural data but also to a synthesized interrelated corpus of data generated in the present study.

(4) The Contractor shall provide appropriate alternative mitigation measures for significant resources which will be adversely impacted. Data will be provided to support the need for mitigation and the relative merits of each mitigation design will be discussed. The Contractor shall also provide time and cost estimates for implementation of each mitigation design. Time and cost estimates may be submitted as a readily removable appendix. The impact of destruction or alteration of a cultural resource should be measured against the extent to which that resource contributes to the understanding of man's activities in the region, its potential for future research and its preservability. Preservation of significant cultural resources is nearly always considered preferable to recovery of data through excavation. When a significant site can be preserved for an amount reasonably comparable to, or less than the amount required to recover the data, full consideration shall be given to this course of action.

8. References (American Antiquity style).

1. Appendices (Maps, correspondence, etc.). A copy of this Scope of Work shall be included as an appendix in all reports.

C-5.4. The above items do not necessarily have to be discrete sections; however, they should be readily discernable to the reader. The detail of the above items may vary somewhat with the purpose and nature of the study.

C-5.5. In order to prevent potential damage to cultural resources, no information shall appear in the body of the report which would reveal precise resource location. All maps which indicate or imply precise site locations shall be included in reports as a readily removable appendix (ex: envelope).

C-5.6. No logo or other such organizational designation shall appear in any part of the report (including tables or figures) other than the title page.

C-5.7. Unless specifically authorized by the Contracting Officer, all reports shall utilize permanent site numbers assigned by the state in which the study occurs.

C-5.8. All appropriate information (including typologies and other classificatory units) not generated in these contract activities shall be suitably referenced.

C-5.9. Reports detailing testing activities shall contain site specific maps. Site maps shall indicate site datum(s), location of data collection units (including shovel cuts, subsurface test units and surface collection units); site boundaries in relation to proposed project activities, site grid systems (where appropriate) and such other items as the Contractor may deem appropriate to the purposes of this contract.

C-5.10. Information shall be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective and advantageous to communicate necessary information. All tables, figures and maps appearing in the report shall be of publishable quality.

C-5.11. Any abbreviated phrases used in the text shall be spelled out when the phrase first occurs in the text. For example use "State Historic Preservation Officer (SHPO)" in the initial reference and thereafter "SHPO" may be used.

C-5.12. The first time the common name of a biological species is used it should be followed by the scientific name.

C-5.13. In addition to street addresses or property names, sites shall be located on the Universal Transverse Mercator (UTM) grid.

C-5.14. All measurements should be metric. If the Contractor's equipment is in the English system, then the metric equivalents should follow in parentheses.

C-5.15. As appropriate, diagnostic and/or unique artifacts, cultural resources or their contexts shall be shown by drawings or photographs.

C-5.16. Black and white photographs are preferred except when color changes are important for understanding the data being presented. No instant type photographs may be used.

C-5.17. Negatives of all black and white photographs and/or color slides of all plates included in the final report shall be submitted so that copies for distribution can be made.

#### C-6. SUBMITTALS.

C-6.1. A brief management summary describing the approximate size and general nature of all cultural resources detected shall be supplied to the Contracting Officer within 10 days of the completion of intensive survey field activity.

C-6.2. The Contractor shall submit 10 copies of the draft report and one original and 50 bound copies each of the final report which include appropriate revisions in response to the Contracting Officer's comments.

C-6.3. The Contractor shall submit under separate cover 6 copies of appropriate 15' quadrangle maps (7.5' when available) or other site drawings which show exact boundaries of all cultural resources within the project area and their relationship to project features, and single copies of all forms, records and photographs described in paragraph 1.04.

C-6.4. The Contractor shall submit to the Contracting Officer completed National Register forms including photographs, maps, and drawings in accordance with the National Register Program if any sites inventoried during the survey are found to meet the criteria of eligibility for nomination and for determination of significance. The completed National Register forms are to be submitted with the final report.

C-6.5. At any time during the period of service of this contract, upon the written request of the Contracting Officer, the Contractor shall submit, within 30 calendar days, any portion or all field records described in paragraph 1.04 without additional cost to the Government.

C-6.6. When cultural resources are located during intensive survey activities, the Contractor shall supply the appropriate State Historic Preservation Office with completed site forms, survey report summary sheets, maps or other forms as appropriate. Blank forms may be obtained from the State Historic Preservation Office. Copies of such completed forms and maps shall be submitted to the Contracting Officer within 30 calendar days of the end of fieldwork.

C-6.7. The Contractor shall prepare and submit with the final report, a site card for each identified resource or aggregate resource. These site cards do

not replace state approved prehistoric, historic, or architectural forms or Contractor designed forms. These 5 X 8 inch cards shall be color-coded. White cards shall be used for prehistoric sites, blue cards for historic sites, green for architectural sites and yellow cards for potentially significant sites. Sites fitting two or more categories will have two or more appropriate cards. This site card shall contain the following information, to the degree permitted by the type of study authorized:

a. site number

b. site name

c. location: section, township, and UTM coordinates (for procedures in determining UTM coordinates, refer to How to Complete National Register Forms, National Register Program, Volume 2.

d. county and state

e. quad maps

f. date of record

g. description of site

h. condition of site

i. test excavation results

j. typical artifacts

k. chronological position (if known)

l. relation to project

m. previous studies and present contract number

n. additional remarks

#### C-7. SCHEDULE.

C-7.1. The Contractor shall, unless delayed due to causes beyond his control and without his fault or negligence, complete all work and services under this contract within the following time limitations.

<u>Activity</u>	<u>Completion Time</u> (In days beginning with acknowledged date of receipt of notice to proceed)	
Porter Lake, AR (R-703)	draft report	40
	final report	95
Nash Well Relief Channels, MO (R48.87 a.c.)	draft report	70
	final report	115
Caruthersville, MO (R-846)	draft report	80
	final report	115
Lambethville, AR (R-752)	draft report	220
	final report	295
Knowlton, AR (R-618)	draft report	280
	final report	355
Henrico, AR (R-606)	draft report	340
	final report	415
Above Dorena, Parcel 2, MO (R-929)	draft report	400
	final report	475

C-7.2. The Contractor shall make any required corrections after review by the Contracting Officer of the reports. In the event that any of the Government review periods (55 days) are exceeded and upon request of the Contractor, the contract period will be extended on a calendar day for day basis. Such extension shall be granted at no additional cost to the Government.



APPENDIX B  
RECORDED CULTURAL PROPERTIES

## APPENDIX B

### TABLE OF CONTENTS

RECORDED CULTURAL PROPERTIES.....	B-1
23CG114.....	B-1
23CG115.....	B-6
23CG116.....	B-14
23ST201.....	B-17
23ST202.....	B-21
NLU-83-54.....	B-25
NLU-83-57.....	B-26
NLU-83-58.....	B-26
NLU-83-62.....	B-27
NLU-83-63.....	B-27
NLU-83-64.....	B-27
NLU-83-65.....	B-28
NLU-83-66.....	B-28
NLU-83-67.....	B-28

### LIST OF FIGURES

Figure B-1. Archeological Site 23CG114.....	B- 2
Figure B-2. 23CG114; east wall profile, 1 x 1.5 meter unit.....	B- 4
Figure B-3. Archeological site 23CG115.....	B- 7
Figure B-4. 23CG115; west wall profile, 1 x 1 meter unit.....	B- 9
Figure B-5. Archeological site 23CG116.....	B-15
Figure B-6. Archeological site 23ST201.....	B-18
Figure B-7. Archeological site 23ST202.....	B-22

### LIST OF TABLES

Table B-1. Artifacts, 23CG114.....	B- 3
Table B-2. Artifacts, 23CG115.....	B-10
Table B-3. Artifacts, 23CG116.....	B-16
Table B-4. Artifacts, 23ST201.....	B-20
Table B-5. Artifacts, 23ST202.....	B-23

## APPENDIX B

### RECORDED CULTURAL PROPERTIES

The fourteen cultural resource properties documented as a result of the survey are described. Artifacts are tabulated by category and provenience and discussed. Efforts were made to assign the sites to a known temporal and/or cultural framework. Statements regarding paleoenvironment are provided for the prehistoric sites recorded. Statements regarding site history for sites dating to the historic period are also provided. Site numbers were provided by the Archeological Survey of Missouri. Sites not eligible for inclusion in the ASM files retain Heartfield, Price and Greene, Inc. accession numbers.

#### 23CG114

##### Location

This site occupies level to nearly level alluvial floodplain deposits (Falaya silt loam) and colluvial levee deposits (Orthents-Water Complex) at an elevation of 102 meters (335 feet) AMSL. Although much of the area has been in cultivation, the northernmost portions of the site have been recently cleared of hardwoods (Aerial photo, July, 1975). Site 23CG114 is approximately 75 meters (250 feet) west of site 23CG115.

##### History

The site (Figure B-1) consists of the remains of a former farm complex built by the late Louis Houck and known by surviving family members as "Beechwall" (Personal Communication: Mr. C. A. Juden, Sr. and Mrs. C. A. Juden, Jr., March, 1983). According to Mr. Juden, Sr. (Louis Houck's grandson), two structures (farm houses) were built at Beechwall, one in a location now occupied by the Headwater Diversion Channel and the other just south of the channel levee. The houses were occupied by Green Cox and Elijah Siebert, both farmers who worked nearby lands. It has been stated that the late Louis Houck never lived at Beechwall, but at Elmwood, further to the south. The structures were apparently built on piers and moved from their original locations at some time prior to 1917.

It was discovered that a railroad spur line was built on the site by 1901. It was connected to the abandoned railroad line which is evident within the right-of-way and contiguous with the levee foot (Figure B-1). This abandoned line was known as the Hoxie Sub of the Nash Lead (Personal Communication: Jerry Elshop, March, 1983). Mr. Juden could not remember a railroad spur line associated with the houses.

##### Methodology

The site was identified on March 11, 1983, when historic debris was found on the surface. The site was flagged and marked on project maps for return investigation. As the site was discovered during the survey of the ditch A right-of-way, screened shovel tests at 30 meter intervals were made across the site. No materials or features were encountered in any of these tests. At that time, it was observed that the site area was in a fallow, recently disced field. The surface was obscured by bean stubble and standing water. The surface was estimated to be from 50 to 75% visible.

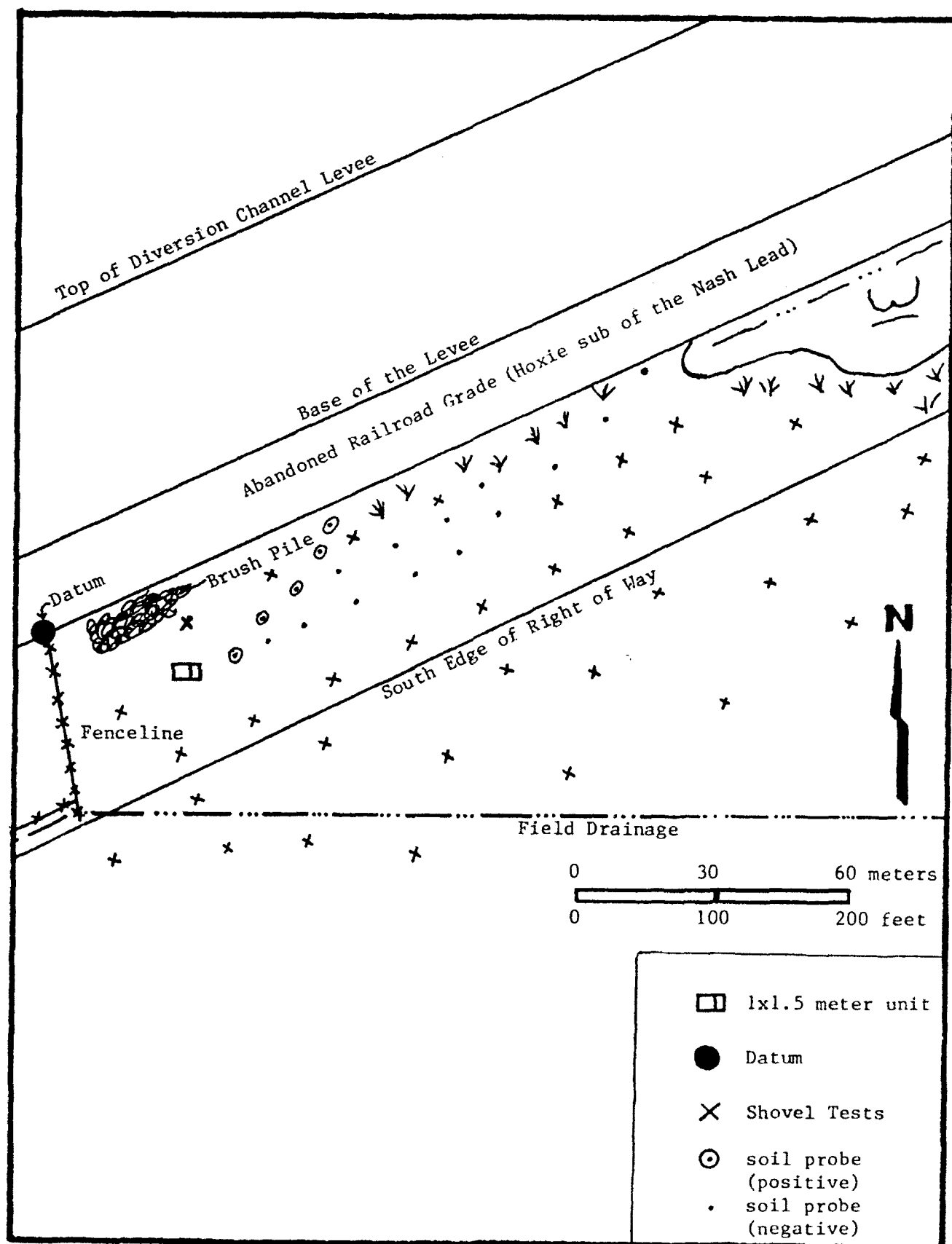


Figure B-1. Archeological Site 23CG114.

When revisited on March 14, 1983, a controlled surface collection was made by tape and compass relative to a temporary datum established on a nearby fence post. A representative collection of debris observed was mapped and collected.

An additional 27 screened (1/4 inch steel mesh cloth) shovel tests (30 x 30 x 50 centimeters) was excavated at 10 meter intervals within the specified right-of-way.

During the shovel testing the railroad spur line was found. In response, a soil probe was used (in conjunction with the shovel test) to determine the location of the railroad bed. The location and results of these probe tests are shown in Figure B-1. Note that ballast material encountered by probe was considered evidence of the spur line bed.

A single 1 x 1.5 meter test unit was excavated to approximately 68 centimeters below ground surface. It was placed in an area where railroad bed material had been located (Figure B-1). All matrix was screened. Further, a soil probe to 125 centimeters was placed in the northwest corner of the unit in an effort to confirm the profile.

#### Stratigraphy and Artifacts

The 1 x 1.5 meter unit profile is described below and depicted in Figure B-2.

0-22 cm: strong brown (7.5YR5/4) clayey silt (colluvium);  
22-33 cm: mottled clay with railroad "ballast" gravels;  
33-68-73 cm: mottled brown (10YR5/4) to gray-brown (10YR4/2) to strong brown (7.5YR5/4) clay;  
68-73-125 cm: mottled brown (10YR5/4) to gray-brown (10YR4/2) to strong (soil probe) brown (7.5YR5/4) clay.

Note that no artifacts were recovered from any of the subsurface tests or the 1 x 1.5 meter unit. The artifacts collected from the site surface are listed in Table B-1 and described below.

TABLE B-1  
ARTIFACTS, 23CG114

<u>Historic</u>	
<u>Ceramic</u>	
stoneware	3
whiteware	2
<u>Glass</u>	
aqua/blue	2
light blue	1
clear	6
purple	6
white	1

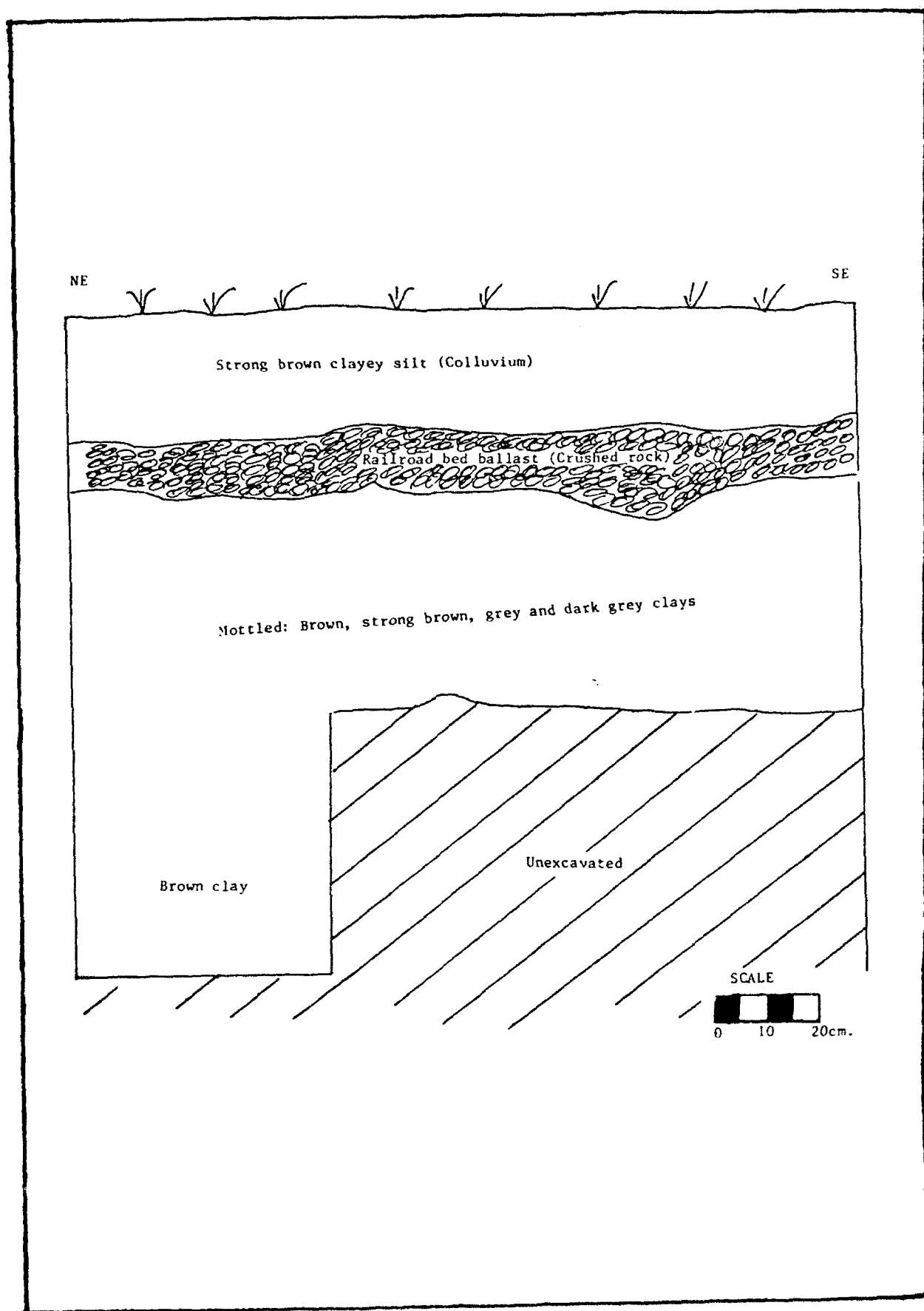


Figure B-2. 23CG114; east wall profile, 1 x 1.5 meter unit.

The stoneware sherds include a rim fragment from a crock with a mouth diameter of approximately 13 centimeters. Wall thickness is 0.83 centimeters. It has an off-white glaze on the exterior and a very dark reddish-brown shiny glaze on the interior. The other two sherds have an off-white glaze on both interior and exterior surfaces.

One of the whiteware sherds is decorated with a blue willow-ware pattern. It could date to either the 19th or 20th centuries. The other whiteware sherd is from a molded vessel with a distinct carination. It includes a fragment of an embossed leafy design.

One of the aqua/blue glass sherds is from a bottle base approximately 12 centimeters in diameter. It was blown in a post-bottom mold. It does not include any maker's marks. The other aqua/blue glass sherd is from a telephone insulator. It includes the embossed letters "HE \_ \_ \_ GRA" from the maker's name, Hemingray. It dates between 1871 (when Hemingray began making and marketing insulators) to today (Munsey 1970:294).

The light blue glass sherd is tinted milk glass. It probably came from a cold cream jar. There are not any diagnostic features.

The clear glass includes an almost complete jar made in a cup-bottom mold. The jar is oval in shape. The exterior is frosted. The rim includes a screw thread. Height is 7 centimeters and maximum and minimum diameters are 6.3 centimeters and 4.5 centimeters, respectively. It does not include any maker's mark.

One of the clear glass sherds is the laid-on neck of a large medicine bottle. Another is the laid-on neck from a smaller medicine bottle. One fragment is from the base of a jar and includes the embossed letters "\_ \_ \_ LTH" and "POWDER." The remaining two clear glass sherds are from decorative vessels. One is from the base of a footed vessel. It is decorated with a pressed radiating design extending from the center to the edge. The other sherd includes an apparent short pod-like leg and a fragment of an impressed decoration which consists of a floral-like motif with alternating petals and leaves.

The purple glass includes two bottle base fragments without any maker's mark or other diagnostic features, a bottle body sherd without any diagnostic features and the neck of a medicine bottle which has a laid-on lip. All of these sherds date to the period 1880-1915. The other two glass sherds consist of decorative pieces. One sherd is decorated with depressed circles within a raised horizontal convex ridge, approximately 2.75 centimeters wide. The edges of the ridge are marked with a pressed triangular border pattern. The other sherd consists of a deeply scalloped rim fragment.

The white glass fragment is decorated with an embossed "woven basketware design."

#### Site Size and Description Based On Investigations

As a result of the investigations it is concluded that all that remains on the site surface is a scatter of historic household debris. This appears to date between 1880 and 1916. The surface debris covers an area approximately

60 x 275 meters (200 x 900 feet) or 16,500 square meters and is oriented northeast-southwest. The size of the site scatter is believed to be the result of continuous disturbance on the location since the early 1900's.

The subsurface component at the site consists of railroad spur remains. The spur has been buried by recent colluvium from the abandoned Hoxie Sub/Nash Lead railroad bed. The spur line remains are restricted to an area approximately 5 meters (16 feet) wide that extends approximately 33 meters (108 feet) in a northeasterly direction parallel to the levee where it meets the abandoned Hoxie Sub of the Nash Lead railroad grade.

#### 23CG115

##### Location

This site (Figure B-3) is located on level to nearly level floodplain deposits (Falaya silt loam) at an elevation of approximately 102 meters (335 feet) AMSL. The entire area is within a fallow bean field adjacent to the Headwater Diversion Channel south levee. The area as depicted on the 1975 aerial photograph was partially covered with hardwood timber (adjacent and parallel to the levee). Site 23CG115 is approximately 75 meters (250 feet) east of site 23CG114.

##### Methodology

The area was initially observed on March 11, 1983, during the initial surface/subsurface inspection of the ditch A right-of-way. The subsurface tests, as proposed, were excavated at 30 meter intervals parallel to the levee and within the initial 30 meter (100 feet) transect. All matrix was screened through 1/4 inch mesh. No cultural materials were encountered in these tests. At the end of the initial ditch A survey transect, a pivot was made and the second transect begun. It was in the second transect that the scatter of cultural material was observed. Additional shovel testing at 5 and 10 meter intervals was conducted in an area within the scatter which appeared to contain a concentration of lithic tools (Figure B-3). Again, the matrix was screened. No cultural materials or features were observed in the subsurface tests. A nearby large oak was marked with red and blue flagging for reference.

The site was revisited on the 14th of March, and a strategy for gathering additional data was developed and implemented. It was observed that due to deforestation, plowing, railroad construction and maintenance, levee construction and channelization and the lack of materials in the initial subsurface shovel tests, none of the surface materials on site 23CG115 are in situ. Also, it was discovered that the site has been intensively impacted by local collectors for at least 50 years (Personal Communication: Mr. C. A. Juden, Sr., March, 1983). Thus, frequency relationships among classes of artifacts from the surface are meaningless. This is particularly pertinent to the relationship between finished or shaped lithic tools and chipping debris.

It should also be noted that standing water and dense, overgrown bean stubble reduced surface visibility over approximately 50 to 75% of the site's surface.



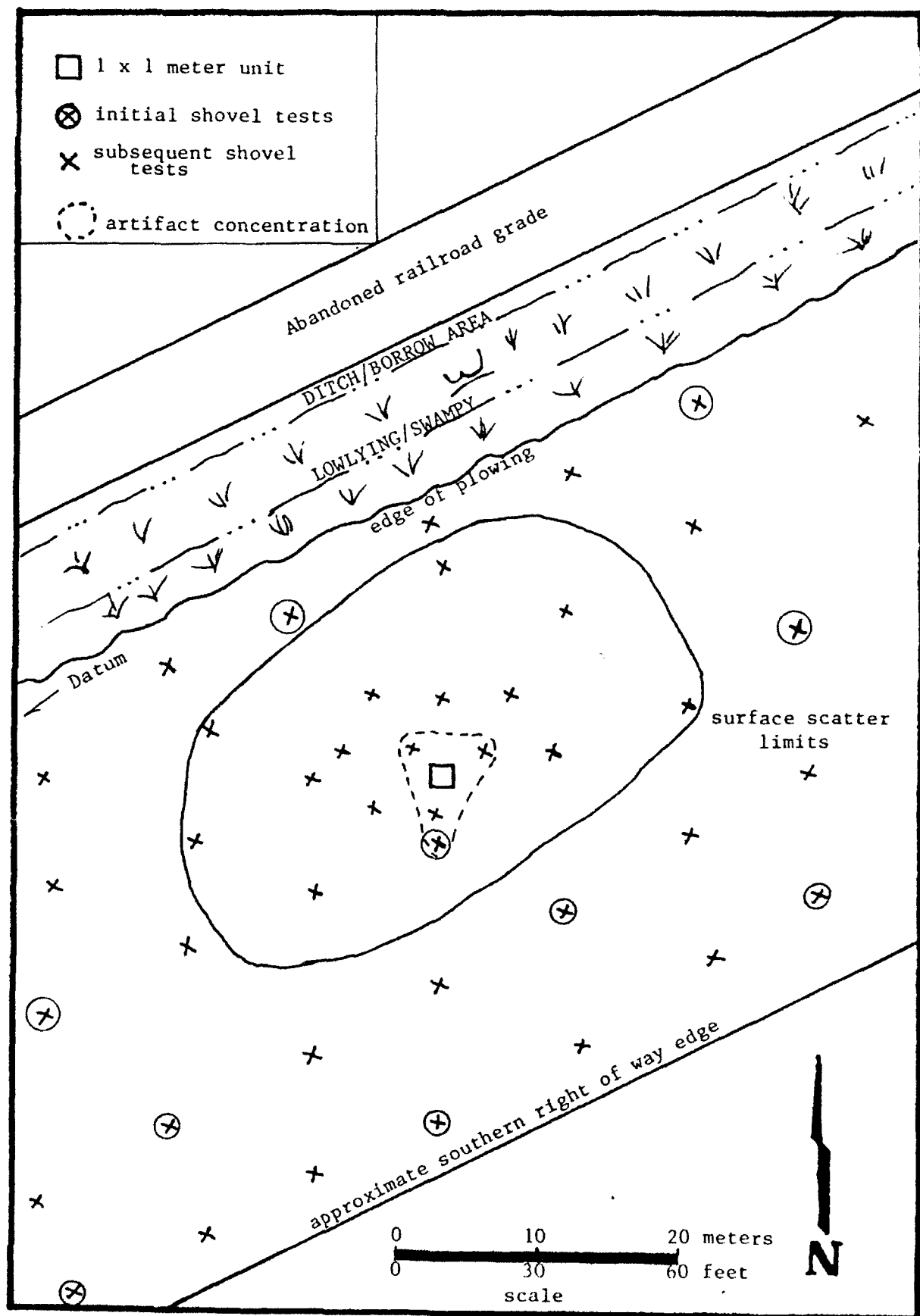


Figure B-3. Archeological Site 23CG115.

In consideration of the limitations to retrieving a useful surface collection in mind, a procedure was devised geared towards a datable culturally diagnostic collection of surface materials. This was to be augmented by subsurface collection to hopefully reveal a potential for retrieving artifact classes in a less biased frequency.

Thus, surface collection was conducted by placing colored flag pins at the location of shaped lithic tools, shaped fragments and the single sherd observed. Note that no bone or other cultural debris other than chipped stone and the one sherd were observed. These flagged artifacts (total of 23) were mapped (tape and compass) in relation to the datum established on the nearby oak and collected.

In addition to the controlled surface collection, a total of 35 subsurface shovel tests, each 30 x 30 centimeters in plan and at least 50 centimeters deep, were excavated at 5-10 meter intervals (Figure B-3). Again, all shovel test matrix was screened. Based on the surface inspection and subsurface tests, the areal site limits were established as shown in Figure B-3. None of the subsurface shovel tests contained cultural materials and no features were observed.

As a final effort to locate buried remains and in conformance with the proposal, a 1 x 1 M<sup>2</sup> unit was excavated. It was placed in an area where the single ceramic sherd and four of the bifacial tools and fragments were recovered from the surface (Figure B-3).

The 1 x 1 M<sup>2</sup> unit was placed in the approximate center of this artifact concentration and excavated by 10 centimeter levels to 40 centimeters. In addition, the southwest quadrant of the unit (50 x 50 centimeters) was excavated in two 20 centimeter levels. This reached a maximum depth of 80 centimeters below the ground surface. All matrix was screened through 1/4 inch steel mesh. All cultural materials were collected and bagged by level.

A soil probe was taken from the center of the southwest quadrant. This was done to confirm continuation of a consistent soil profile. The probe reached 150 centimeters below the surface.

#### Stratigraphy and Artifacts

The upper 50 centimeters of the soil profile exposed in the 1 x 1 M<sup>2</sup> excavation unit is consistent with profiles in the shovel tests. Therefore, the profile from the excavation unit is presented below and is believed representative of the site as a whole. The profile is shown in Figure B-4.

0-19 cm:	very dark grayish-brown (10YR3/2) silt loam with cultural material (sparse);
19-31 cm:	very dark grayish-brown (10YR3/2) clayey silt loam (cultural material sparse, none beyond 27 cm);
32-40/40-80 cm: (SW corner only)	mottled, very dark grayish-brown (10YR3/2), gray-brown (10YR5/2) and brown (10YR4/2) clayey silt, void of cultural material;
80-150 cm: (soil probe)	dark yellowish-brown (10YR4/4) silt loam (probed).

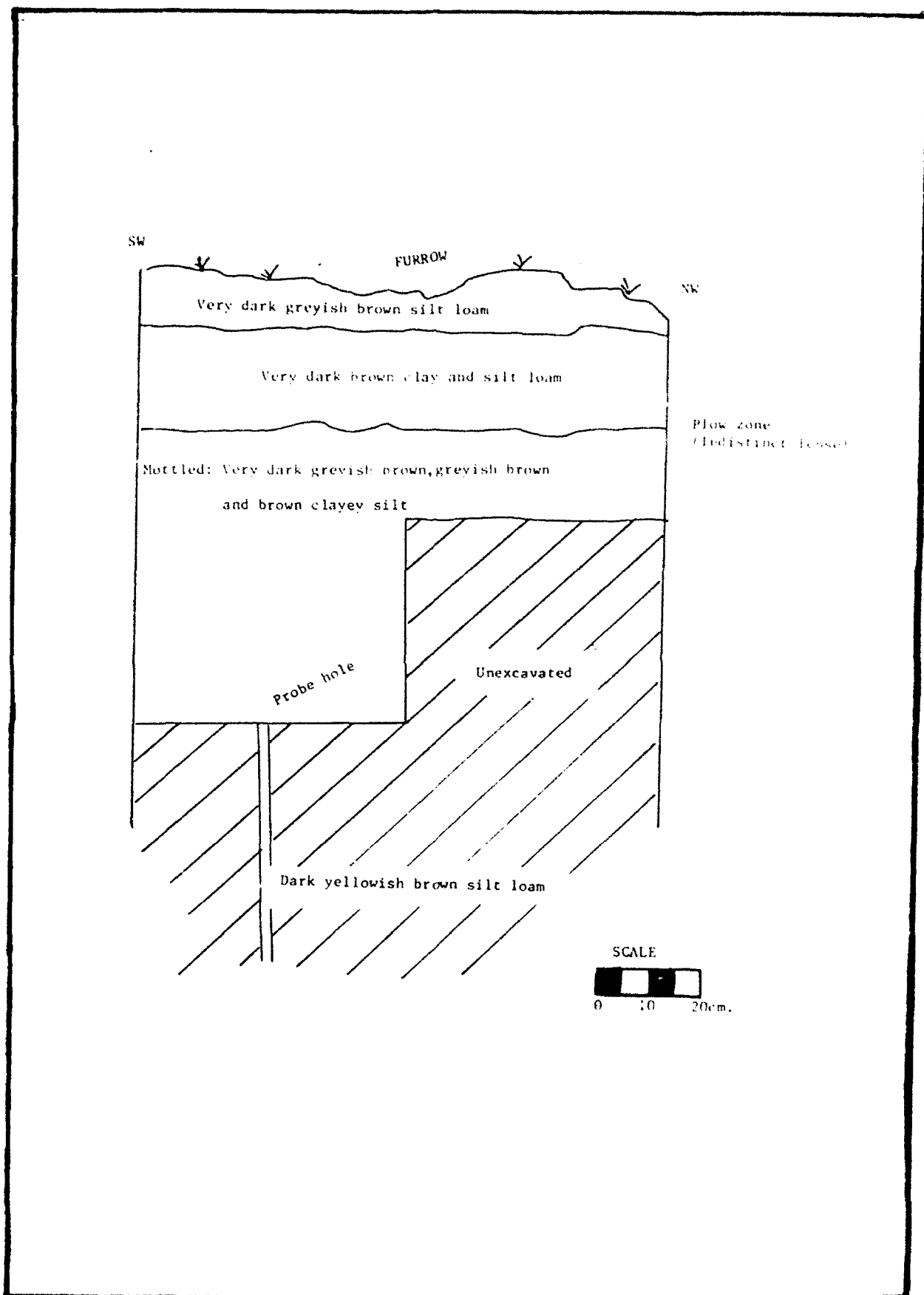


Figure B-4. 23CG115; west wall profile, 1 x 1 meter unit.

Cultural materials (artifacts) from the excavation unit were recovered to a depth of 27 centimeters below ground surface. All artifacts were recovered from disturbed deposits. These included 26 prehistoric items from level 1 (0-10 centimeters), 18 prehistoric items from level 2 (10-20 centimeters) and four prehistoric and one historic items from level 3 (20-30 centimeters). The fourth level (30-40 centimeters) was void of cultural material. Artifacts collected from the site are listed in Table B-2 and described below.

TABLE B-2  
ARTIFACTS, 23CG115

	Surface	1 x 1M2 unit		
		Level 1	Level 2	Level 3
		0-10cm	10-20cm	20-30cm
<u>Prehistoric</u>				
<u>Ceramic</u>				
Korando cord marked	1	-	-	-
<u>Lithic</u>				
projectile points and fragments	8	2	-	-
biface fragments, distal	2	-	-	-
biface fragments, medial	3	-	-	-
biface fragments, basal	5	-	-	-
biface scraper	1	-	-	-
biface end scraper	1	-	-	-
flakes, modified	2	1	-	-
flakes, interior	-	5	3	2
chips, interior	-	3	7	2
hammerstone	-	-	1	-
thermal spalls, chert	-	3	-	-
miscellaneous sandstone	-	12	7	-
<u>Historic</u>				
<u>Glass</u>				
purple	-	-	-	1
	23	26	18	5

The single prehistoric sherd has an overall exterior surface finish/decoration of closely spaced, diagonal cord impressions. It was tentatively identified with the type Korando Cord Marked (Chapman 1980:284-285). The exterior surface is brown and the interior surface is black. The core grades from brown to black. Temper is grog. Sherd thickness is approximately 0.9 centimeters.

The projectile points fall into two categories, those with straight to slightly expanding stems (seven) and those with contracting stems (three). The straight to expanding stem sample includes five from the surface and two from Level 1 of the test pit.

One point from the surface is complete. The blade is triangular with slightly concave edges which meet to form a sharp point. The shoulders are strong. The stem expands very slightly. The base is straight, relatively

unthinned but blunted by battering. Dimensions are: length, 5.80 centimeters; width, 3.21 centimeters; thickness, 1.10 centimeters. Material is a light reddish-brown chert.

One point from the surface has a triangular blade with one concave and one convex edge. The distal tip is missing. The shoulders are fairly strong, but not symmetrical. The stem expands slightly. The base is slightly convex and thinned. Dimensions are: length (incomplete), 4.89 centimeters; width, 2.46 centimeters; thickness, 0.76 centimeters. Material is very pale brown chert.

One point from the surface has a triangular blade with one straight edge and one slightly convex edge. The distal tip is missing. The shoulders are assymetric and one is slightly barbed. The stem is expanding. The base is straight and appears to have been sheared or snapped. Dimensions are: length (incomplete), 4.03 centimeters; width, 2.48 centimeters; thickness, 0.81 centimeters. Material is a pale brown chert.

One point from the surface has a triangular blade with straight edges. The distal tip is missing. The shoulders are very slightly barbed. The stem is parallel. The base is straight and thinned. Dimensions are: length (incomplete), 3.45 centimeters; width, 2.54 centimeters; thickness, 0.62 centimeters. Material is a very pale brown chert.

The final point from the surface with a straight to expanding stem, consists almost entirely of the stem with just one remnant fairly strong shoulder. The stem is straight. The base is straight and thinned. Dimensions are: length (incomplete), 1.95 centimeters; width, 2.18 centimeters; thickness, 0.82 centimeters. Material is a pale brown chert.

One of the expanding stem projectile points from level 1 of the excavation unit has a triangular blade with slightly convex edges. The distal tip is missing. The shoulders are weak and rounded. The stem is slightly expanding. The base is straight and appears to have snapped or sheared off. The stem edges are ground. Dimensions are: length (incomplete), 6.88 centimeters; width, 2.89 centimeters; thickness, 0.90 centimeters. Material is a light brownish-gray chert.

The other expanding stem projectile point from Level 1 of the excavation unit has a triangular blade with recurved edges. The shoulders are fairly strong. The stem is slightly expanding. The base is broken. Dimensions are: length (incomplete), 3.77 centimeters; width, 2.41 centimeters; thickness, 0.72 centimeters. Material is gray chert.

All of these examples can be compared with the types Stone Square Stemmed (Chapman 1975:257) and Table Rock Stemmed (Chapman 1975:257-258). The five examples from the surface and the one example from Level 1 of the test pit are tentatively identified as Stone Square Stemmed because of their strong shoulders, while one point from Level 1 of the test pit is tentatively identified as a Table Rock Stemmed because the shoulders are rounded.

One of the contracting stemmed points was identified as a Gary point fragment. Most of the blade is missing and the remaining edges appear slightly concave. The shoulders are weak. The stem contracts to a rounded base.

Dimensions are: length (incomplete), 3.57 centimeters; width, 2.72 centimeters; thickness, 0.85 centimeters. Material is a grayish-brown chert.

One of the contracting stemmed points has a short triangular blade with convex edges. Shoulders are square. The long base, approximately half the length of the point, contracts slightly over most of the length and then merges into a rounded base. Dimensions are: length, 5.70 centimeters; width, 2.65 centimeters; thickness, 0.86 centimeters. Material is a mottled white, light reddish-brown and dark gray. It may possibly be compared with the type Table Rock Pointed Stem (Chapman 1980:313).

The final contracting stemmed projectile point has a small triangular blade with one convex and one concave edge. The distal tip is missing. The shoulders are strong. The stem contracts and merges into a rounded base. Dimensions are: length (incomplete), 3.75 centimeters; width, 2.00 centimeters; thickness, 0.62 centimeters. Material is a light gray chert. It can not be compared to known types due to its fragmentary nature.

Two biface distal fragments were found on the surface. One has slightly convex edges. Dimensions are: length, 2.9 centimeters; width, 3.25 centimeters; thickness, 1.19 centimeters. Material is a reddish-yellow chert. The other has slightly recurved edges. Dimensions are: length, 3.16 centimeters; width, 2.08 centimeters; thickness, 0.76 centimeters. Material is a light reddish-brown chert.

Three medial biface fragments were found on the surface. The largest has relatively straight edges. Dimensions are: length, 3.62 centimeters; width, 3.28 centimeters; thickness, 1.21 centimeters. Material is an off-white chert. Another fragment has straight edges. The faces exhibit thermal spalling. Dimensions are: length, 2.40 centimeters; width, 2.65 centimeters; thickness, 0.70 centimeters. Material is a dusky red chert. The final medial section includes only one convex edge. Dimensions are: length, 2.45 centimeters; width, 1.95 centimeters; thickness, 0.65 centimeters. Material is a white chert with small voids.

Five biface basal fragments were collected from the surface. One consists of a narrow blade contracting to a rounded stem. Step fractures on one face indicate that thinning was unsuccessful and that the piece is a projectile point preform. Dimensions are: length, 4.29 centimeters; width, 2.81 centimeters; thickness, 1.23 centimeters. Material is a light gray chert.

One of the biface basal fragments is a broad blade with convex edges which converge to form a rounded base which includes the striking platform. Dimensions are: length, 4.00 centimeters; width, 4.00 centimeters; thickness, 1.04 centimeters. Material is a light brownish-gray chert.

One of the biface basal fragments is a broad blade with one straight edge and one convex edge which appears to contract towards the distal end. The base is straight and consists of a thinned striking platform. Dimensions are: length, 4.0 centimeters; width, 3.72 centimeters; thickness, 1.06 centimeters. Material is a white chert.

One of the biface basal fragments has one straight edge and one slightly convex edge. The base is straight but asymmetric. Dimensions are: length,

5.87 centimeters; width, 3.55 centimeters; thickness, 1.62 centimeters. Material is a light brownish-gray chert.

The final biface basal fragment consists of a corner piece with one straight edge and a straight battered but unthinned base. Dimensions are: length 3.20 centimeters; width, 4.05 centimeters; thickness, 1.02 centimeters. Material is a light gray chert.

The biface identified as a scraper has one slightly convex face, while the other is steeply pyramidal. It is roughly ovate in outline. Dimensions are: length, 6.00 centimeters; width, 3.30 centimeters; thickness, 2.80 centimeters. Material is a yellowish-brown grading to almost white chert.

The biface identified as an end scraper may well be a reworked projectile point stem. The distal end is slightly convex and worked from one side only. The edges contract to form a rounded base. Dimensions are: length, 2.76 centimeters; width, 2.35 centimeters; thickness, 0.60 centimeters. Material is a white chert.

One of the modified flakes from the surface is irregular in outline and approximately 4.5 centimeters in diameter. Thickness is 0.8 centimeters. It exhibits one retouched/worked edge and was probably used for scraping. Material is a pale gray chert. The other modified flake from the surface is a blade fragment. One edge has been flaked square (with a burin removal blow) and the opposite edge shows nicking. It was probably used for cutting. Dimensions are: length, 3.45 centimeters; width, 2.00 centimeters; thickness, 0.53 centimeters. Material is pale brown chert.

The modified flake from Level 1 of the test pit has been thermally fractured, but appears to represent an edge section of a biface, though retouch is present on only one face.

The flakes and chips (no bulb of percussion) from the excavation unit are generally less than 3 centimeters in diameter. They consist of very pale brown and pale gray cherts.

The hammerstone is a roughly heart shaped fine quartzite river cobble. It exhibits slight wear on the pointed end. Dimensions are: length, 6.60 centimeters; width, 6.55 centimeters; thickness, 3.55 centimeters.

Two of the chert thermal spalls are dark gray and the other is dark red.

The miscellaneous sandstone fragments all appear to have been burned. They are generally less than 2.5 centimeters in diameter. The largest has dimensions of 5 x 3 x 1.6 centimeters.

Flakes representing secondary and tertiary stages of the lithic reduction sequence were observed. All of those observed were of fine or medium grained chert and included red/ pink, white, gray, black and brown. A few of the red/pink specimens exhibited spalling, possibly indicating some form of heat treatment. Chips (no bulb of percussion) and amorphous chunks of lithic debitage (lithic reduction shatter) including the same colors as flakes were also observed scattered over the site surface.

The historic purple glass is from the stem of a wine glass or similar object. The slight purple color results from the decomposition of manganese glass which generally dates to the period AD 1880-1915 (Munsey 1970:55). The presence of this artifact between 23-27 centimeters below the surface substantiates subsurface disturbance.

#### Site Size and Description Based on Investigations

As a result of the investigations it is concluded that the prehistoric component of 23CG115 (Figure B-3) covers a surface area of approximately 20 x 40 meters (65 x 131 feet/0.2 acres) with the long axis northeast/southwest. Although materials were recovered to a depth of 27 centimeters below the surface from the excavation unit, negative shovel test results do not confirm subsurface site boundaries. Subsurface deposits on the site that contain prehistoric remains are believed mixed with historic debris.

The artifacts indicate that the site may have been occupied as early as 5000 BC (based on identification of the Stone Square Stemmed point). The ceramic sherd (Korando Cord Marked) indicates that later occupation/utilization occurred during the later stages of the Woodland period (circa AD 900), but may have continued into the early Mississippi time period (Chapman 1980:285).

Historic debris is scattered on the surface. However, it is sparse and does not constitute a definable site component. There are no historic features or evidence of definable historic occupation or activity.

#### 23CG116

##### Location

This site (Figure B-5) is located entirely on redeposited dredge material (spoil). The site occupies the crest and slopes of a spoil bank. Soils belong to the Orthents-Water Complex. Surrounding alluvial soils are of the Mhoon silt loam association. Elevation of the natural ground surface is approximately 102 meters (333 feet) AMSL.

##### Methodology

The site was identified on March 12, 1983, when prehistoric debris was observed on the surface during survey. The site was flagged and marked on project maps. Surface material collected was observed to be widely scattered with no discernable concentrations. As the site was discovered during survey, shovel tests at 30 meter intervals were made in the site and its vicinity (Figure B-5). Although efforts were made to screen the shovel test matrix, the clay content precluded passage through the screen. Thus, all matrix was hand sieved. When discovered, the site surface had been recently plowed. Approximately 95 to 100% of the surface was visible.

The site was revisited on March 13, 1983 and no additional cultural debris was encountered. In an effort to locate additional cultural materials, a series of east-west oriented transects, each 5 meters in width, were traversed. These began at the northwest edge of the suspected site area and continued east and south for an approximate distance of 50 meters (Figure B-5).



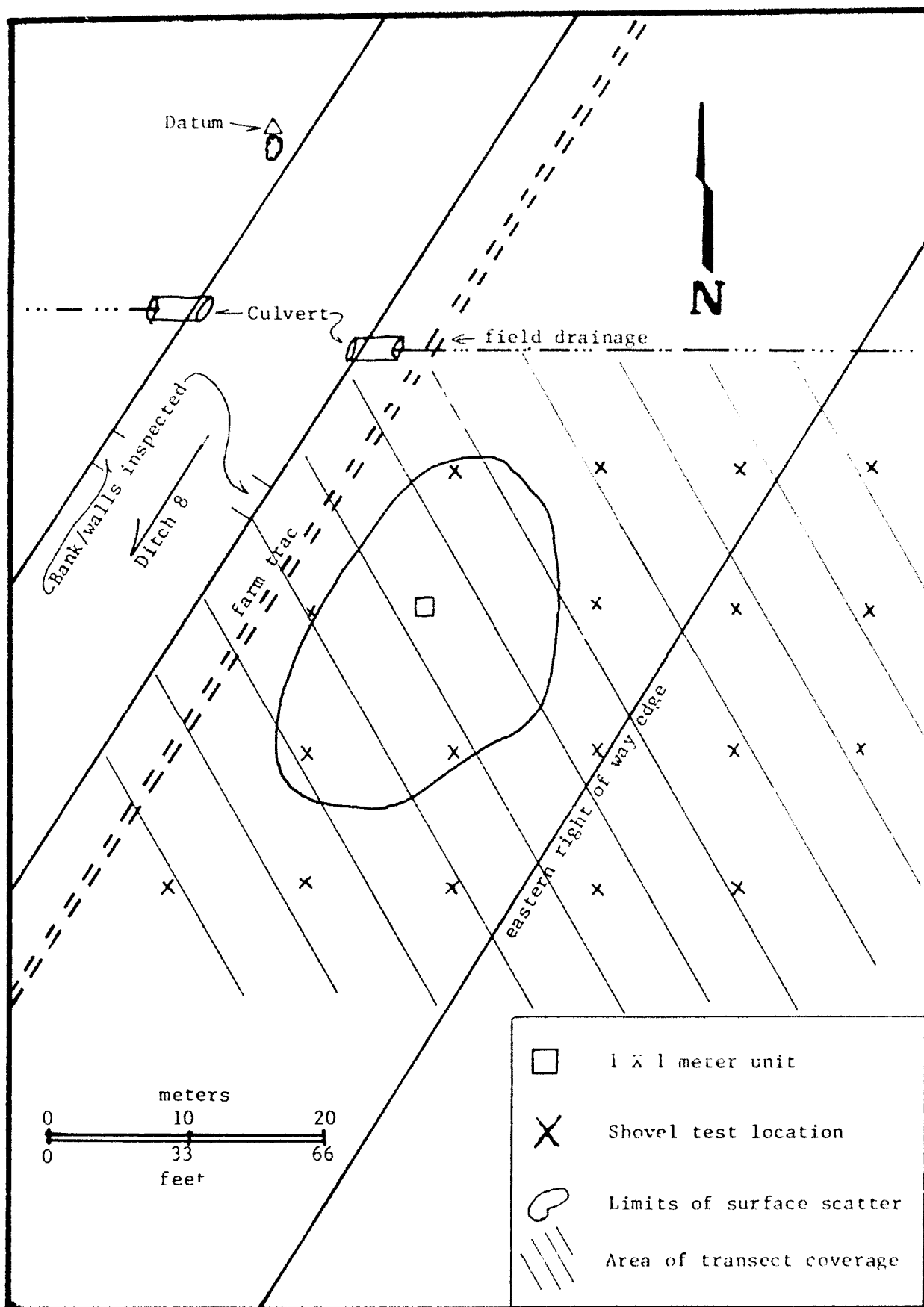


Figure B-5. Archeological Site 23CG116.

Thus, approximately 2500 square meters of freshly disced/plowed surface was intensively surface inspected for cultural materials. Two 3 meter long segments of each ditch wall adjacent to the site were closely examined for cultural remains (Figure B-5). No cultural materials or features were encountered.

Although subsurface shovel tests excavated during the initial discovery were placed entirely within the existing spoil bank as the width of the proposed right-of-way and spoil bank were approximately the same; during reexamination of the location, tests were placed on as well as off (east of) the spoil bank and beyond the right-of-way margins. A series of 18 subsurface shovel tests were excavated at approximate 10 meter intervals (Figure B-5). An attempt to screen the matrix from each test was made, however, the presence of clay precluded effective screening. Therefore, the matrix was hand sorted to recover artifacts which may have otherwise gone unnoticed. No subsurface cultural material was recovered from these tests. A 1 x 1 M<sup>2</sup> excavation unit was placed at the approximate center of the surface scatter. The unit was excavated in four 10 centimeter levels. The southwest quadrant was excavated an additional 16 centimeters (as a single level). Thus, a total depth of 56 centimeters was attained. An effort was made to pass the matrix through a 1/4 inch steel mesh hardware cloth screen but was ineffective due to excessive clay.

#### Stratigraphy and Artifacts

The profile observed in the 1 x 1 M<sup>2</sup> excavation unit is consistent with that found both on the levee slope and the surrounding field:

- 0-10 cm: dark grayish brown (10YR4/2) clayey silt loam;
- 10-56 cm: mottled, brown, strong brown and grayish-brown (10YR4/3, 7.5YR5/6, 10YR5/2) clays with a yellowish-brown (10YR5/6) clayey silt Krotovina.

Artifacts collected from the site are listed in Table B-3 and described below.

TABLE B-3  
ARTIFACTS, 23CG116

	General Site Surface	1 x 1 0-56 cm
<u>Prehistoric</u>		
<u>Ceramic</u>		
untyped, undecorated, grog-tempered	3	-
<u>Lithics</u>		
biface fragment	1	-
secondary flakes	3	-
interior flakes	23	-
chips with cortex	2	-
chips without cortex	9	-
<u>Faunal</u>		
tooth fragment	1	-
	42	0

The untyped, undecorated grog-tempered sherds are all less than 2 centimeters in diameter. Thickness ranges between 0.5 and 0.8 centimeters. Surface colors are reddish-yellow and cores are gray.

The biface is a non-diagnostic medial section. Dimensions are: length (incomplete), 2.12 centimeters; width (incomplete), 3.98 centimeters; thickness, 0.6 centimeters. Material is a light gray chert.

The flakes and chips (no bulb of percussion) range up to 3.8 centimeters in length. The flakes include both lipped and unlipped platforms. Material is almost entirely light gray or very pale brown chert. It does, however, include one clear crypto-crystalline quartzite flake.

The tooth fragment consists of enamel, possibly from a deer tooth.

None of the lithic artifacts are temporally diagnostic. However, the grog-tempered sherds indicate Post-Archaic occupation; probably Woodland (1000 BC - AD 900), but possibly as late as Mississippian times (AD 900-1450).

#### Site Size and Description Based on Investigations

Based on field investigations, it is tenable to conclude that the pre-historic materials recovered are redeposited from the adjacent ditch. The scatter of the remains covers a 17 x 25 meter (55 x 82 feet/0.1 acres) area (long axis northeast/southeast) and are the result of spreading mounded spoil material and/or continuing agricultural practices.

Because no cultural materials were found in the ditch exposures or in shovel tests, it is speculated that the entire site was removed by dredging. Because no additional artifacts were found during secondary survey, it is assumed that few (if any) materials from the site remain in the levee matrix.

It is concluded that the original site was small and dated to the Post-Archaic time frame; Woodland-Mississippian Periods (1000 BC - AD 1450).

#### 23ST201

##### Location

This site (Figure B-6) occupies portions of a spoil bank and extends northward into level to nearly level, presumably natural, floodplain soils. The spoil bank is approximately 1.5 to 2.0 meters above the surrounding natural floodplain deposits. It is on redeposited Orthents-Water Complex and Sharkey silty clays. It occupies the crest and slope of the spoiled area as well as portions of the broad flat floodplain surface at an elevation of approximately 102 meters (335 feet) AMSL. The site is entirely within a fallow bean field.

##### History

The site consists of a surface scatter of historic household debris. It is believed to represent historic trash which was dumped into the adjacent ditch and subsequently redeposited at this location through dredging activities. Early U.S.G.S. topographic maps (1934 and 1939 editions of the Morley,

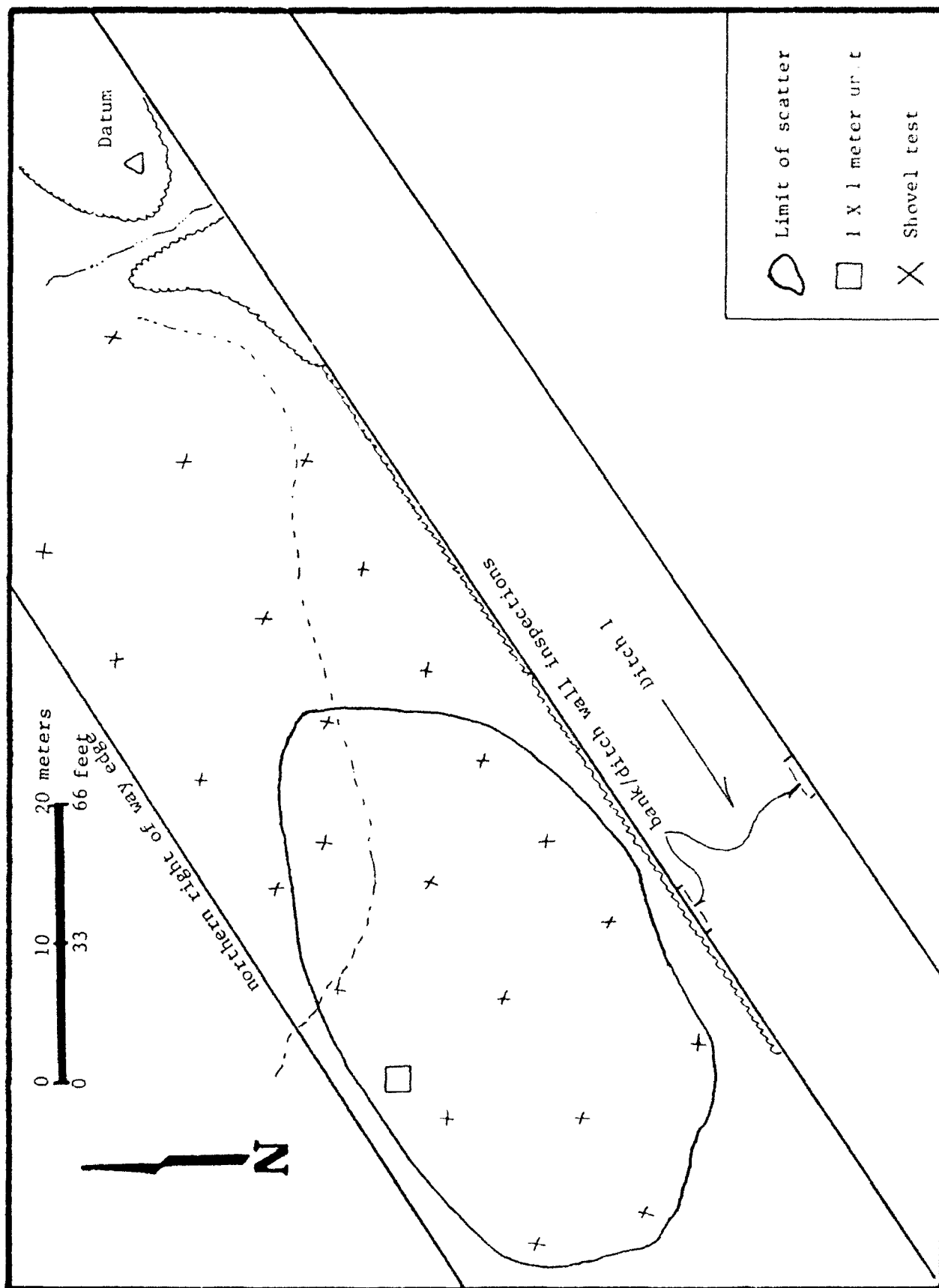


Figure B-6. Archeological Site 23ST201.

Missouri, 15' quadrangle) were inspected, however, no residential or agricultural structures are depicted at this location. A local informant does not recollect the presence of any kind of structure and indicated that it is not uncommon for trash to be dumped in ditches which are both remote and accessible (Personal Communication: Reubon Meyr, March, 1983).

### Methodology

The site was identified on March 13, 1983, when historic household debris was observed on the surface. The site was flagged and its location plotted on project maps for return investigation. As the site was discovered during the survey of ditch 1, a series of subsurface shovel tests were excavated in and adjacent to the site. No cultural material or features were encountered in any of these tests. The presence of redeposited clayey soils and naturally deposited Sharkey clays precluded effective screening. Therefore, all matrix from these tests was hand sieved. The site was entirely within a fallow bean field. Scattered bean stubble and dried mud obscured the surface. Approximately 50 to 75% of the ground surface was visible.

When revisited on March 16, 1983, a temporary datum was established on a nearby tree. A surface collection of representative artifacts was made with tape and compass relative to datum. A series of subsurface tests (hand sieved) at approximate 10 meter intervals were excavated across the site (Figure B-6). These tests were located on and off the spoil area and failed to produce any cultural materials. Both banks of the adjacent ditch were inspected for cultural deposits, however, none were observed. As a final effort to locate buried, possibly redeposited, cultural debris and in conformance with the scope, a 1 x 1 M<sup>2</sup> test unit was placed in an area of artifact concentration.

The test unit was hand excavated in four 10 centimeter levels to a final depth of 40 centimeters below surface. The matrix was trowel sorted and hand sieved as the clayey texture precluded passage through the 1/4 inch screen.

### Stratigraphy and Artifacts

The profile of the 1 x 1 M<sup>2</sup> unit is typical of that observed in the shovel tests and is believed representative of the immediate vicinity.

- 0-9 cm: brown (10YR4/3) silty clay loam;
- 9-40 cm: mottled brown (10YR5/4) and dark grayish-brown (10YR4/2) clay;
- 40-60 cm: mottled brown (10YR5/4) and dark grayish-brown (10YR4/2) clay.  
(soil probe)

Artifacts collected from the site surface are listed in Table A-4 and described below.

The ceramic (fired clay) brick fragment is coarse textured. Surfaces indicate it was machine-made. Thickness is 6.3 centimeters (2.5 inches).

The porcelain is from a jar, cup or similar vessel. It consists of an undecorated rim fragment with a thinned lip. Diameter of the orifice is approximately 9 centimeters.

TABLE B-4  
ARTIFACTS, 23ST201

<u>Historic</u>	
<u>Ceramic</u>	
brick	1
porcelain	1
stoneware	3
whiteware	2
<u>Glass</u>	
aqua/blue	1
clear	3
white	2

Two of the stoneware sherds are from a large jug or crock. Surfaces are salt glazed. One sherd, with a wall 0.75 centimeters thick, has light gray glaze and the other, a base 1.9 centimeters thick, has a white glaze. The third stoneware sherd is from a smaller vessel. Thickness is 0.55 centimeters. The exterior is glazed white and the interior is glazed dark brown, with a matte sheen.

One of the whiteware fragments is from a cup with a thinned vertical lip. It is decorated with a floral transfer decoration which includes small blue flowers with a yellow center and green leaves with brown outlines and stems. The other whiteware sherd exhibits a molded decorative feature, which resembles an unfurled fern. It is otherwise undecorated.

The aqua/blue glass sherd is from a fruit jar. It consists of a threaded rim portion.

One of the clear glass fragments includes a rim and shoulder fragment from a rectangular fruit juice jar. The lip bears the embossed date "1925" and the final two digits "17" of an apparent patent number. Another clear glass fragment is from a rectangular bottle made in a post-mold machine. It includes the embossed letter "PAT." and "-1". It almost certainly post-dates 1920. The remaining clear glass sherd is flat, probably from a window.

The two white glass sherds are from canning jar lids. One sherd includes an embossed diamond and the letters "FOR." The diamond trade mark has been used by the Diamond Glass Co., Rogersford, Pennsylvania since 1924.

#### Site Size and Description Based on Investigations

It is concluded that all that remains of this site is a light surface scatter of historic household debris. It covers an approximate 25 x 40 meter (82 x 131 feet/0.24 acres) area, and is oriented northeast/southwest.

The absence of purple glass may indicate that the area was not utilized until post-1915 (Munsey 1970:55). The artifacts indicate that the location was utilized as a dump at least until the mid-1920's.

It is believed to be the result of trash dumped into the adjacent ditch and redeposited during initial channelization or subsequent dredging activities. As no subsurface cultural deposits were encountered and no evidence of cultural remains were observed in the adjacent ditch walls, it is concluded that the entire site was redeposited. Subsequently, continuous agricultural activities in the area has further scattered the material across the surface.

#### 23ST202

##### Location

This site occupies the spoil bank and natural floodplain deposits. The spoil bank is approximately 1.5 to 2.0 meters above the floodplain which is approximately 102-103.6 meters (335-340 feet) AMSL. Soils include the Orthents-Water Complex (spoil bank) and Sharkey silty clays (floodplain).

##### History

This site (Figure B-7) is a scattering of historic household debris and construction materials. It is believed to represent the two structures depicted on the U.S.G.S. 1934, 1939 and 1966 editions of the Morley, Missouri, quadrangle. The southernmost of these represents the location of a two room house with one room having a dirt floor. It was reportedly built in the late 1920's and razed at some time prior to 1980 (Personal Communication: Charles Cunningham, March, 1983). The northernmost structure (depicted as an open square on the quadrangles) represents Packwood's dairy which may have been built as early as 1920. Both structures were razed after 1978 as they are depicted in the photorevised (1978) U.S.G.S. Chaffee, Missouri, 7.5' quadrangle.

##### Methodology

The site was identified on March 13, 1983, when a sparse scatter of historic construction materials (concrete) was observed on the surface within the right-of-way. The location was plotted on project maps for return investigations. As the site was recorded during the survey of ditch 1, a series of subsurface shovel tests were excavated at 30 meter intervals across the site and immediate vicinity. These tests failed to locate subsurface cultural material. Excessive clay content encountered in the tests precluded effective screening, therefore, the matrix from each test was trowel sorted and hand sieved.

The site lies entirely within a fallow bean field. Scattered clumps of bean stubble and dried mud obscured visibility within the right-of-way. Approximately 70 to 75% of the ground surface was visible during the investigations. The site was revisited on the 16th of March, 1983, and a temporary datum was established on a nearby utility pole. A surface collection of representative artifacts was made within the right-of-way. The position of the artifacts was recorded in relation to datum with tape and compass. A series of subsurface shovel tests were excavated across the site area at approximate 10 meter intervals (Figure B-7). The matrix was hand sieved as excessive clay content precluded effective screening. Again, no cultural materials or features were observed in these tests. Two areas, each approximately 3 meters in length along the ditch walls adjacent to the site, were

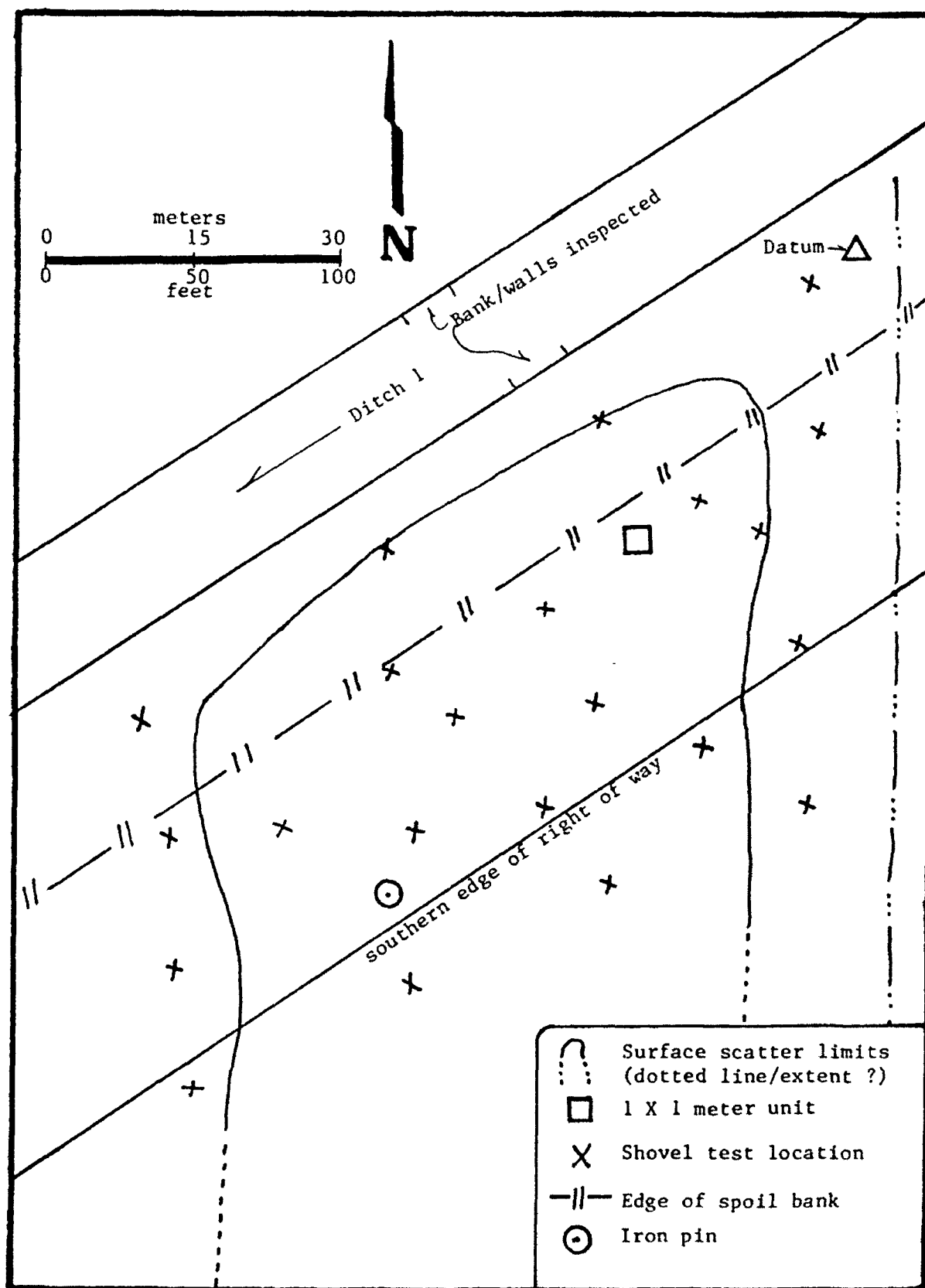


Figure B-7. Archeological Site 23ST202.



inspected for the presence of cultural remains, however, no such deposits were encountered. As a final effort to locate subsurface cultural material and/or features, a 1 x 1 M<sup>2</sup> test unit was placed within the right-of-way (Figure B-7). The unit was hand excavated in four 10 centimeter levels. The matrix was trowel sorted and hand sieved because of the clay content. The northwest quadrant of the unit was further excavated in two 20 centimeter levels and one 9 centimeter level. A final depth of 89 centimeters below the surface was attained. No cultural material or features were encountered in these levels.

#### Stratigraphy and Artifacts

The profile observed in the 1 x 1 M<sup>2</sup> unit is believed representative of the site and is described below. The upper 50 centimeters can be compared with the shovel test profiles.

- 0-7 cm: brown (10YR4/3) silty clay loam;
- 7-17 cm: dark grayish-brown (10YR4/2) silty clay;
- 17-89 cm: very dark grayish-brown (10YR3/2) clay.

Representative artifacts collected from the site surface after being mapped (tape and compass) are listed on Table B-5 and described below.

TABLE B-5  
ARTIFACTS, 23ST202

<u>Historic</u>	
<u>Ceramic</u>	
porcelain	6
stoneware	2
whiteware	4
<u>Glass</u>	
bottles, aqua/green	1
bottle, clear	1
sherds, aqua/blue	1
sherds, brown	1
sherds, clear	8
sherds, purple	3
sherds, white	7
marble, red	1
<u>Other</u>	
asbestos, tile	1
iron	3
silver, plated	1
zinc	1
	<u>41</u>

Two of the porcelain artifacts are cylindrical insulator fragments. One is glazed and the other is unglazed. Diameter of each is approximately 3 centimeters. An internally threaded electrical fitting, possibly for a light bulb, had "250 V" embossed on it. An unglazed rectangular plate, flat on one side (presumably the underside) and embossed "UC2P60" and the maker's mark

Ⓟ, had a raised ridge on the other side. The plate had dimensions of 7.1 x 5.3 centimeters and ranged in thickness from 0.8 centimeters at the edges to 1.75 centimeters at the ridge. The article appears to be some kind of electrical insulator. One porcelain artifact appears to be one arm of a toilet roll holder or similar bathroom feature. The final porcelain object is a blue glazed marble 1.6 centimeters in diameter.

One of the stoneware sherds is from a crock with an external diameter of approximately 22 centimeters. It is glazed white on both exterior and interior surfaces. Wall thickness is 1.05 centimeters. The other stoneware sherd is 0.7 centimeters in thickness. It has a shiny dark brown glaze on both interior and exterior surfaces.

One of the whiteware sherds is from a cup and is decorated with a floral transfer pattern which includes small red, blue and yellow flowers with green leaves on a trellis. Another sherd, from a plate, is decorated with a different floral pattern which includes blue and yellow flowers, green leaves and deep red, apparently painted, tendrils. Another whiteware sherd, from a plate, includes portions of a hand painted large red and pink flower with green leaves. The final whiteware sherd is from a plate edge and is decorated with a flow blue design. The white outline of a clover leaf and other white lines perpendicular to the edge were made by slight embossment of the body so that they stood proud of the blue (raised white lines against the flow blue background). The whole plate was then subsequently clear glazed.

The aqua/green bottle is a rectangular medicine type bottle. It was machine-blown featuring seams around the top and neck. Closure was a screw cap. The base is embossed "Ⓟ 308 4". Height of the bottle is 13.45 centimeters and the external body dimensions are 4.75 x 2.55 centimeters. The P in the circle trademark was used by Pierce Glass, Port Allegany, Pennsylvania, between 1905 and 1917 and during the 1960's (Toulouse 1971:412-413, 603). The lack of coloration suggests a 1960's manufacture date rather than the 1905-1917 period.

The clear glass bottle is a rectangular scent bottle. It was machine-blown and features seams around the top and neck. The base is embossed "15". Height is 5.75 centimeters and the square body has sides of 1.93 centimeters. The clear color of the bottle argues for a post-1915 date.

The aqua/blue glass sherd is from a bottle base. Seams indicate it was made in a post-bottom mold. It is embossed with a large "4" on the base.

The brown glass sherd is a cork-closed laid-on neck from a bottle.

One of the clear glass fragments is a knob/handle. Another fragment is from a Pepsi-Cola bottle, two are non-diagnostic bottle fragments and one is a piece of window glass. One fragment is the base of an oval shaped bottle/flask. The base is embossed "L4" and the words "ONE PINT" are

61 D126 BALL  
73 47

embossed on the side just above the base. Another fragment is the base from a medicine bottle. The base is embossed "DURAGLASS" and "DURAGLASS" is again

6 Ⓢ 51

embossed on one side just above the base. This indicates that the bottle was

made after 1951 by the Owens-Illinois Glass Co. in Charleston, West Virginia (Toulouse 1971:170, 395, 403). The final clear glass sherd is decorated with a pressed "snowflake" pattern. It appears to have been a sherd from a dish, perhaps a small bowl or cup.

The purple glass includes a large bottle base fragment, without any diagnostic features; a bottle neck fragment with mold marks around the lip; and a fragment of a glass cannister jar lid. The glass was probably made between 1880 and 1915 (Munsey 1970:55).

The seven white glass fragments are all from a canning jar lid liner. The rim is embossed "B 6 8 GENUINE PORCELAIN LINER MASON CAP." The maker could not be identified. It must be emphasized that this material is glass, not porcelain.

The red glass consists of a marble 1.5 centimeters in diameter.

The asbestos tile is probably from a structure siding.

Two of the iron objects are round wire nails 6 centimeters (2.25 inches) in length. The other iron object is a small casting wheel, rusted to a base plate.

The silver plated object is a soup spoon. The reverse of the handle is embossed "ROYAL SAXONY SILVER PLATE". The end of the handle is decorated with a floral motif (fern tendrils).

The zinc object is a screw-thread lid for a canning jar.

#### Site Size and Description Based on Investigations

It is concluded that all that remains of this site (within the right-of-way) is a surface scatter of historic cultural debris including household and construction items.

The artifacts and personal communications indicate the site was occupied from the early 1900's until post-1951. The scatter covers an approximate 40 x 100 meters (131-328 feet/0.98 acres) with the long axis north-south. It becomes more concentrated south and beyond (out of ) the right-of-way boundaries. Investigations indicate the material is restricted to the surface. No evidence of subterranean features, such as cellars and/or basements were observed, and none are anticipated. Early topographic quadrangles (1934, 1935, 1966 Morley, Missouri) indicate a house was at this location by at least 1934 and remained until after 1978. The other structure was not present until after 1939 and remained until post-1978. Recall that both are depicted on the photorevised (1978) Chaffee, Missouri, 1963, 7.5' topographic quadrangle.

#### NLU-83-54

This modern 12 x 40 foot rectangular mobile home is located on the southern edges of the south Headwater Diversion Channel Levee within the ditch A right-of-way. It is entirely within the cleared and elevated, abandoned (1963) railroad grade indicated on the U.S.G.S. 7.5' 1978, photorevised, Chaffee, Missouri, quadrangle.

The residence occupies Orthents-Water complex borrow pit related soils at an approximate elevation of 103.6 meters (340 feet). It is approximately 91.48 meters (300 feet) south of the Headwater Diversion Channel and is surrounded by an immature hardwood thicket which parallels the former railroad grade right-of-way. No other associated structures were observed and, although shovel tests were not placed in the yard, those exposed to the south in the plowed field yielded no cultural materials. This area tested lies within naturally deposited soils. As no cultural material was encountered, it is doubtful that earlier historic or prehistoric materials exist beneath the levee berm.

NLU-83-57

This abandoned collapsed probable storage shed or cattle feeder is located on the slight slope of the Headwater Diversion Channel southern levee berm within the ditch D right-of-way. It was rectangular, with approximate dimensions of 2.4 x 3 meters (8 x 10 feet) and constructed of 2 x 4" - 2 x 6" wood planking covered with corrugated sheet metal. It occupies redeposited Orthents-Water Complex soils at approximately 103.6 meters (340 feet) AMSL. Vegetation consists of pasture grasses and weeds which dominate the entire levee right-of-way. Although no other structures are associated, corral-like fencing was observed and noted to the east-northeast. Subsurface tests excavated in the vicinity of the wood/sheet metal pile revealed no cultural materials or features. Soils ranged from a very dark brownish gray clay to mottled brown, dark grayish brown and strong brown clay. The profile verifies that the soils were redeposited during channelization and levee construction.

NLU-83-58

This small privately built rectangular bridge creates an access-way from the nearby north-south county line road, across ditch 4, to the adjacent plowed bean field. It occupies spoil banks of the ditch beginning on the west shoulder of the road and continuing west into the field. Soils in the vicinity Orthents-Water Complex and Sharkey silty clays. Elevation is approximately 102 meters (333 feet) AMSL. There is no major vegetation in the area, only short grasses and weeds along the edges of the highway and field. The bridge has dimensions of approximately 3 x 4 meters (10 x 12 feet) and is supported by concrete walls and round pole uprights. The edges are shored with plywood and reinforced with railroad ties. The driving surface consists of flush board planking (parallel) running east-west (perpendicular to the north-south ditch) and is supported by angled reinforced steel bars. Railroad ties are bolted to the southern and northern edges, possibly used as a tire guide as well as for additional support. The bridge appears to be of recent construction and recent historic trash (e.g., labelled dog food cans, trash liners) lines the ditch banks in the general vicinity. Subsurface shovel tests conducted along the right-of-way of ditch 4 and in this vicinity were negative. That is, no cultural remains or features were encountered in any of the tests. Note that these tests were located on redeposited and natural soils. No cultural material was encountered in any of the tests. Thus, it is doubtful that archeological deposits exist below the spoil area.

NLU-83-62

This site is the location of a recent trash dump on the north side of ditch 1 within a non-tillable flooded stand of hardwood trees. It occupies the crests and slopes of several mounded spoil piles which have not been leveled for farming. The site occupies Orthents-Water Complex borrow pit related soils at an elevation of approximately 105 meters (345 feet) AMSL. As stated, the entire area, bounded to the north by a fallow bean field, is wooded with immature bottomland hardwoods. Much of the area is flooded with standing water.

The dump is currently in use as indicated by the presence of labelled cans and bottles (paper labels). Materials observed but not collected at this location include but are not limited to: barbed wire, wire fencing with electric insulators, five gallon metal buckets, corrugated steel drain pipe and sheet metal, wire rope "cable", pyramidal concrete blocks, cinder blocks, one gallon paint cans, heavy machinery oil filters, four 16 oz. glass jars and bottles with partial labels, six 15 oz. metal cans, tires and inner tubes, 2 x 4" - 2 x 6" - 1 x 12" wood planks, washing machine housing, 55 gallon drums, transmission parts (gears, cogs, shafts), chains, motors, pumps and last, but not least, a kitchen sink.

Numerous (8) shovel tests were excavated in and around the piles of trash, however, no cultural remains or features were noted below surface (where present). All the material is restricted to the immediate surface and covers an approximate 30.48 x 60.96 meters (100 x 200 feet/0.46 acre) area. Shovel tests excavated in naturally deposited soils adjacent to this location failed to produce any cultural deposits. Thus, it is doubtful that earlier historic or prehistoric cultural deposits would be found below this spoil area.

NLU-83-63

This wooden rectangular bridge is located on an east-west county line road which crosses ditch 1. It occupies redeposited Orthents-Water Complex and the floodplain deposits composed of Sharkey silty clays at an elevation of 101.19 meters (332 feet) AMSL. As stated, it is rectangular, being approximately 6 x 12 meters (20 x 40 feet). The bridge is constructed with round pole upright supports of a railroad trestle-like design. The roadway is horizontal and has flush plank boards with perpendicular planks designed for one-lane traffic. Historic trash was observed nearby, however, it is not considered to be of significance due to its very recent nature. Subsurface shovel tests in the vicinity of the bridge during the survey of ditch 1 failed to produce any cultural material and no features were encountered. Although a precise construction date is unknown, the bridge appears to post-date 1940. Adjacent areas are plowed fields and/or borrow ditches with overgrown weeds.

NLU-83-64

This recent reinforced steel and concrete bridge crosses ditch 1 on Highway 77 approximately 0.8 kilometers (0.5 miles) north of Chaffee, Missouri. It occupies elevated roadway and spoil (Orthents-Water Complex soils) from adjacent right-of-way ditches as well as the drainage ditch. The elevation is approximately 101 meters (333 feet) AMSL. The bridge is rectangular and has dimensions of approximately 10 x 20 meters (30 x 60 feet). As stated, the

bridge appears to be of recent origin although the precise date of construction is unknown. It is constructed of reinforced concrete and is bordered by paved (asphalt) highway to the north and south. Those shovel tests excavated nearby in redeposited and natural spoils (along both sides of the ditch within the right-of-way) yielded no cultural remains whatsoever. The bridge is believed to have been built within the last 10 years. As no materials were encountered below the surface in the redeposited or natural soils, none is anticipated below the spoil area. It is bounded by plowed fields to the west and commercial/non-agricultural properties to the east.

#### NLU-83-65

This rectangular bridge is located on an east-west county line road which crosses ditch 8. It occupies the elevated roadway and spoil banks (Orthents-Water Complex) from the nearby ditch. The bridge has dimensions of approximately 10 x 15 meters (30 x 50 feet) and appears to be constructed entirely of reinforced concrete. It is used as a temporary benchmark by local surveyors as indicated by the faded yellow paint (...TBM \_\_\_\_\_ 75). Elevation is approximately 101.5 meters (333 feet) AMSL. Shovel tests excavated in redeposited and natural soils on both sides of the ditch and road failed to locate any cultural deposits or features. The bridge appears to have been constructed within the last 10-20 years. As no subsurface cultural deposits were encountered within redeposited and natural soils, it is doubtful that cultural deposits would be below the spoil area. The bridge is surrounded by plowed/disc'd agricultural fields.

#### NLU-83-66

This is the location of the abandoned Chaffee City sewage disposal plant on the east side of Highway 77, north of Chaffee, Missouri. According to a local resident (City Clerk, Louis Delezene) the facility was built in the early 1950's but has been abandoned. Presently the area is used as a dump area for non-organic trash (e.g., refrigerators, washers, dryers, other household appliances) by local residents. The facility is composed of brick and concrete vents and a round reinforced concrete reservoir, presumably of settling pond-like function. It occupies both floodplain Sharkey silty clays and spoil deposits (Orthents-Water Complex) from ditch 1 at an elevation of 101.5 meters (333 feet) AMSL. The entire area is overgrown with small hardwood saplings and a moderate growth of annual weeds.

The subsurface shovel tests excavated in the vicinity within redeposited and natural soils were negative. That is, no cultural materials were encountered in any of these tests. As stated, the facility dates to the early 1950's. It is doubtful that earlier cultural deposits exist below the spoil as no cultural remains were encountered within redeposited or natural soils.

#### NLU-83-67

This site consists of "Steves" Garage and associated junk yard. It occupies the north banks of ditch 1 at an elevation of 101.5 meters (333 feet) AMSL. The garage (not shown on the photo-revised, 1978, Chaffee, Missouri, 1963, U.S.G.S. 7.5' quadrangle) is rectangular and has dimensions of approximately 6 x 12 meters (20 x 40 feet). Old cars, farm implements and other metal junk is scattered along the ditch bank (northside) for an approximate

distance of 200 meters (600 feet) east from Highway 77. Additional materials observed in the yard/lot include, but are not limited to, large concrete and asphalt (road) slabs, broken bricks, broken household appliances and furniture, railroad ties, etc. Subsurface tests in the vicinity of the garage and associated scatter were excavated at 30 meter (100 feet) intervals, however, no cultural remains or features were encountered. These tests were excavated on natural (Sharkey silty clays) and redeposited (Orthents-Water Complex) soils. Thus, as no cultural material was encountered, none is anticipated below the spoil bank.

REFERENCES CITED

CHAPMAN, C. H.

1975 The Archeology of Missouri, I. University of Missouri Press.  
Columbia, Missouri.

1980 The Archeology of Missouri, II. University of Missouri Press.  
Columbia, Missouri.

MUNSEY, CECIL

1970 The Illustrated Guide to Collecting Bottles. Hawthorne Books.  
New York.

TOULOUSE, JULIAN H.

1971 Bottle Makers and Their Marks. Thomas Nelson, Inc. New York.



APPENDIX C  
PERSONS CONSULTED

APPENDIX C  
PERSONS CONSULTED

DATE	PERSON/ADDRESS/EXPERTISE	SUBJECT MATTER
3-11-83	Joe Glaus family Nash, Mo.	Information on historic and prehistoric sites in area
	Local informants living in area	
3-11-83	William E. Busch Cape Girardeau, Mo.	Information about district boundaries and responsibilities. Directed us to Little River Drainage District office.
	Project Director Corps of Engineers, Cape Girardeau office, St. Louis District	
3-11-83	Dale Cato Cape Girardeau, Mo.	Informed us they would help all they could and that Larry Dowdy was the man to see
	Sec.-Treas., Little River Drainage District (LRDD)	
3-11-83	Larry Dowdy Cape Girardeau, Mo.	Information on old drawings and maps the District has on file. Gave permission to use them.
	Project Manager, LRDD	
3-12-83	Walter Keisker Jackson, Mo.	Beechwall. He knew nothing, suggested we call Shelby Brown.
	Local informant	
3-12-83	Shelby Brown Jackson, Mo.	Information on location of old sawmills and the hotel in the vicinity of Nash, Mo. Recalled the sawmill in the vicinity of Beechwall.
	Local informant lived in area as a boy	
3-13-83	Terry Schoptaugh Cape Girardeau, Mo.	He knew nothing and had nothing in collections.
	Director, Southeast Mo. University (SEMO) Regional Historical Collection	
3-14-83	Joe Glaus family Nash, Mo.	Beechwall. He knew nothing.
	Local informants living in area	
3-15-83	Larry Dowdy Cape Girardeau, Mo.	Information on the history of the drainage district.
	Project Manager, LRDD	
3-15-83	Scott Browning Cape Girardeau, Mo.	Information on land ownership in study area. Gave us C.A. Juden Sr.'s name for information on Beechwall.
	Owner Cape Girardeau Co. Abstract and Title Co.	
3-15-83	Charles Leming Cape Girardeau, Mo.	Information on old sawmill.
	Owner old lumber company in Cape Girardeau	
3-15-83	W. H. Houck Cape Girardeau, Mo.	Information on Louis Houck. W. H. Houck was not related and had no information.
	Local informant	

DATE	PERSON/ADDRESS/EXPERTISE	SUBJECTS DISCUSSED
3-15-83	Harvey Houck Cape Girardeau, Mo. Local informant	Information on Louis Houck. Harvey Houck was not related and had no information.
3-15-83	Mrs. G. P. Alt Cape Girardeau, Mo. Local informant. Ancestor was early landowner	Information on early landholdings in the area.
3-15-83	Dr. Arthur Mattingly Cape Girardeau, Mo. History Dept., SEMO	Information on Beechwall and Nash. Had none.
3-16-83	C. A. Juden, Sr. Cape Girardeau, Mo. Local informant, Louis Houck's grandson	Information on Beechwall and Louis Houck. Sent us to his daughter-in-law, Mrs. C. A. Juden, Jr.
3-16-83	Mrs. C. A. Juden, Jr. Cape Girardeau, Mo. Local informant related to Louis Houck by marriage	Gave us more information about Louis Houck and early railroads. Showed us family archival material that is not presently open to the public.
3-16-83	Mike Halter Cape Girardeau, Mo. Maintenance office, LRDD	Showed us maps and drawings in files. Nothing on Beechwall.
3-16-83	Reubon Meyr Chaffee, Mo. Local informant lives in Chaffee, MO	Information on trash dumping habits in area. Also sites on north end of Chaffee along ditch 1.
3-16-83	William Harmon Chaffee, Mo. Has lived in Chaffee area since early 1900's	Information on the general area, swamp and ditches.
3-16-83	Robert Delezene Chaffee, Mo. City Clerk Chaffee, Mo.	Information on the Old Chaffee Sewage Plant
3-16-83	Clyde Stubbs Chaffee, Mo. Local informant lived in Chaffee area since early 1900's.	General information on the Great Swamp, railroads and lumber boom.
3-16-83	Charles Cunningham Chaffee, Mo. Local informant lives in Chaffee	Information on sites on north end of Chaffee along ditch 1.
3-16-83	John Elderidge Chaffee, Mo. Local informant lives in Chaffee	Information about the Old Chaffee Sewage Plant.
3-16-83	Judith Deal Jefferson City, Mo. State Historic Preservation Office	Information about state requirements and guidelines.

APPENDIX D  
CORRESPONDENCE



UNIVERSITY OF MISSOURI-COLUMBIA

College of Arts and Science

Department of Anthropology  
American Archaeology  
Archaeological Survey of Missouri

15 Switzler Hall  
Columbia, Missouri 65211  
Telephone (314) 882 3544

9 June 1983

Nancy Clendenen  
Heartfield, Price and Greene, Inc.  
802 North 31st Street  
Monroe, LA 71201

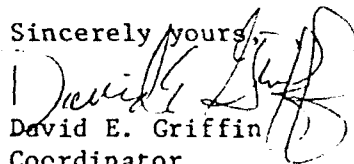
3 583

Dear Ms. Clendenen:

After discussing the Historic Inventory Forms that you recently sent us for numbering with ASM site numbers, Dr. Michael J. O'Brien, ASM Director and I determined that they are not eligible for inclusion into the ASM files. All appear to be too late to be included as archaeological or historical resources. We hope that this information will help you with respect to your contractual obligations.

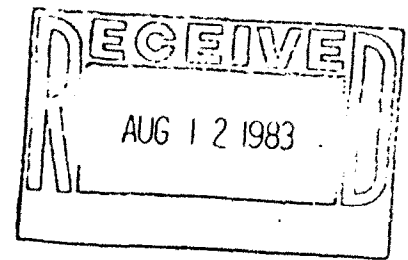
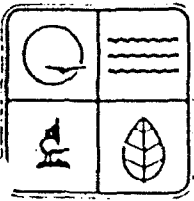
Should you have any questions regarding the above, please don't hesitate to call us. Thank you for your interest in the Archaeological Survey of Missouri.

Sincerely yours,

  
David E. Griffin  
Coordinator

Archaeological Survey of Missouri

enc



August 3, 1983

MISSOURI DEPARTMENT OF NATURAL RESOURCES

(314) 751-2479

Jefferson City, Missouri 65102

P.O. Box 176

Mr. Sam R. Morgan  
Chief, Planning Division  
U.S. Army Corps of Engineers  
Memphis District  
B-314 Clifford Davis Federal Building  
Memphis, Tennessee 38103

Re: Proposed Item 48.87A.C. Nash, Missouri; Relief Well Ditches,  
C, D & 1.4; Cape Girardeau and Scott Counties, Missouri

Dear Mr. Morgan:


In response to your letter dated 29 July 1983 concerning the above referenced project, the Historic Preservation Program has reviewed the information provided and has determined that archaeological site 23ST202 is not eligible for inclusion in the National Register of Historic Places. Therefore, we have no objections to the initiation of project activities.

However, if the currently defined project area or scope of project related activities are changed or revised, the Missouri Historic Preservation Program must be notified and appropriate information relevant to such changes or revisions be provided for further review and comment to ascertain the need for additional investigations.

If I can be of further assistance, please call or write.

Sincerely,

DIVISION OF PARKS AND HISTORIC PRESERVATION

  
Michael S. Weichman  
Chief, Review and Compliance

MSW:kld

cc: Don Martin/

Christopher S. Bond Governor  
Fred A. Lafser Director

Division of Parks and Historic Preservation  
John Karel Director